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Photo
Master

local environment agency plan

EXE

FIRST ANNUAL REVIEW

AUGUST 2001



**ENVIRONMENT
AGENCY**

EXE LEAP – FIRST ANNUAL REVIEW AUGUST 2001

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SUMMARY

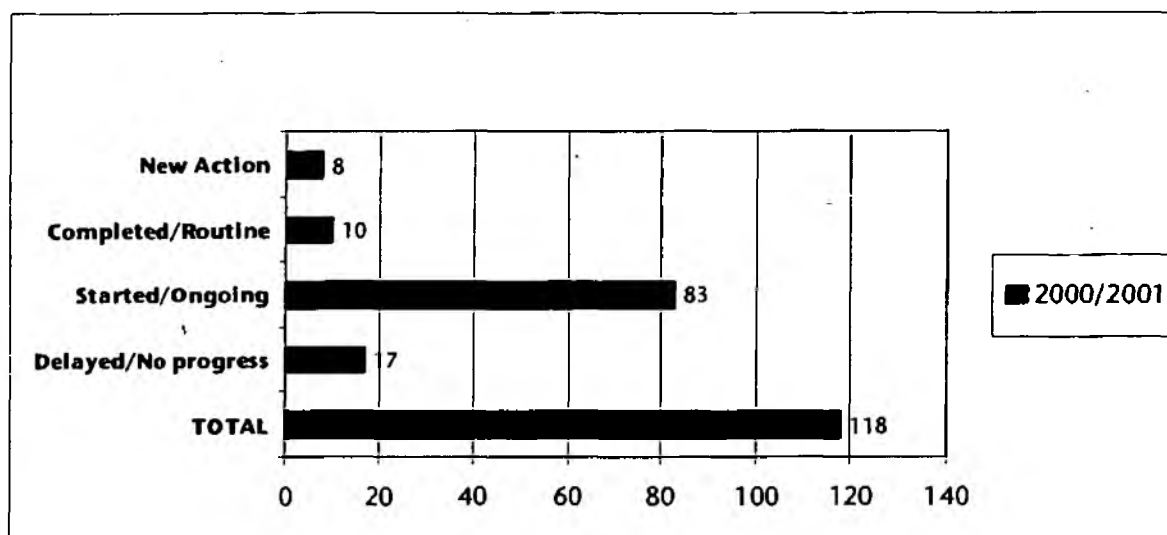
This document monitors the implementation of the Action Plan and reports on the progress made in the first year of the Exe LEAP during 2000/2001.

This document has a total of 118 actions of which 8 are new actions, 10 have been completed or are routine actions, 83 have been started and are ongoing and 17 actions that have been delayed and not progressed. The following graph compares the progress of the actions within this annual review period of 2000/2001.

Progress on fisheries actions continues to be affected by a lack of funding and with cuts of approximately £1.5 million 'Grant in Aid' money for salmonid areas, our work on fisheries habitat improvement will be very much further restricted during 2001/2002.

The outbreak of foot and mouth disease has curtailed free access to the countryside since February 2001 to the present time and has greatly restricted the majority of our fieldwork.

Progress with Actions



Progress is indicated in the Action Tables by the following symbols:

✕ New Action

● Completed/Routine Action

▼ Started/Ongoing Action

■ Delayed/No Progress Action

1 INTRODUCTION

This is the First Annual Review of the Exe Action Plan. It introduces the Environment Agency and summarises the progress made with the actions. Previous publications relating to this catchment contain more detailed information and map based data, therefore this review should be read in conjunction with these publications:

- Exe Consultation Draft – July 1999¹
- Exe Action Plan – July 2000 to July 2005²

These publications are available on request from the Devon Area office of the Environment Agency.

1.1 The Environment Agency

The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management. These duties and powers, together with those areas where we have an interest but have no powers to act, are described in more detail in Section 4. We are required and guided by the Government to use these duties and powers in order to help achieve the objective of sustainable development. Sustainable development has been defined as *'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'*³.

At the heart of sustainable development is the integration of human needs and the environment within which we live. The creation of the Agency was, in part, recognition of the need to take a more integrated and longer-term view of environmental management at a national level. We have to reflect this in the way we work and in the decisions we make.

Taking a long-term perspective requires us to anticipate risks and encourage a precautionary approach, particularly where impacts on the environment may have long-term effects, or when the effects are not reversible. We must also develop our role to educate and inform society as a whole, as well as carrying out our prevention and enforcement activities, to ensure continuing protection and enhancement of the environment.

One of the key outcomes of the United Nations 'Earth Summit'⁴ was agreement by governments that, to solve global environmental problems, local action is crucial: we must therefore all think globally but act locally.

An Environmental Vision, The Environment Agency's contribution to Sustainable Development⁵

Our vision for the environment and a sustainable future *'a healthy, rich and diverse environment in England and Wales, for present and future generations'* was published in January 2001.

Nine themes have been identified to contribute to this long-term goal.

- a better quality of life
- an enhanced environment for wildlife
- cleaner air for everyone
- improved and protected inland and coastal waters
- restored, protected land with healthier soils
- a 'greener' business world

- wiser, sustainable use of natural resources
- limiting and adapting to climate change
- reducing flood risk.

Long-term objectives have been set for each theme and progress towards these objectives will be measured using a set of key indicators. We will use this vision as a basis for co-operative projects with others, including those we regulate, to help protect the environment and to enhance its quality wherever we can.

We have consulted widely about the content and direction of the vision, and it therefore reflects views from across society, as well as, from within the Agency.

1.2 Local Environment Agency Plans

We are committed to a programme of Local Environment Agency Plans (LEAPs). These plans help us to identify and assess, prioritise and solve, local environmental issues related to our functions, taking into account the views of our local customers. LEAPs replace Catchment Management Plans, which were produced by the former National Rivers Authority.

The LEAP process involves several stages as outlined below.

The Consultation Draft – Publication of the Consultation Draft¹ marked the start of a three-month period of formal consultation, which enabled external organisations and the public to work with us in planning the future of the local environment. At the end of the consultation period, we produced a Summary of Public Consultation Responses⁶ that gave the results of the process.

The Action Plan – The Action Plan⁷ takes into account the results of the consultation. It includes numerous actions identifying costs, timescales and partner organisations. Agreed actions are incorporated into our annual business plans.

Some issues can be resolved through our statutory and routine work programme, whilst others require action over and above our day-to-day business. Funding for the latter is not always certain. Usually, because of the short-term nature of our funding, we can only firmly commit ourselves to action in the current and next financial years. Our priorities, policies and budget may change: these changes will be reflected at each Annual Review.

Some issues require solutions beyond the scope of our existing budgets or technology – they are nevertheless valid issues and earn their place in this plan, in the hope that a solution may be found in the future.

In most cases we show the anticipated cost to the Agency against an action. These are estimated costs to give the reader an idea of the relative size and resource implications of each action.

The Annual Review – We monitor implementation of the Action Plan² and report on the year's progress in a published Annual Review. The Annual Review also identifies any additional issues and actions needed to maintain progress in light of any changes within the LEAP area. We invite people to contact us at any time to raise new issues or suggest new actions – this ensures the LEAP process is an active one, which evolves to meet the changing needs of the local environment. After five years, or sooner if required, we plan to carry out a major review of the progress we have made. At this stage, we intend to produce a new LEAP Consultation Draft.

Review of Progress – The following pages outline updates on the various issues, together with the relevant actions as set out in the Action Plan². A summary of progress is given for each action, together with target dates for future work, if applicable. New actions have been added where appropriate.

Future Reviews – We will review progress again in 2002 and details will be published in the Second Annual Review of the Exe LEAP.

1.3 Devon Area Business Plan

The LEAP process defines our local priorities, and together with our national and regional priorities form the Devon Area Business Plan. This Business Plan sets out the activities that will be carried out in this area each year.

The Devon Area Business Plan provides a focus to our work and allows managers to ensure the delivery of the required work and to identify and allocate resources. The plan enables us to manage change, as tasks can be re-prioritised and resources re-allocated as the need arises.

1.4 The LEAP Steering Group

The LEAP Steering Group acts as a communication link between our committees the local community and ourselves. The members of the group represent a range of commercial, Local Authority, recreational and environmental interests. They commented upon the Consultation Draft and Action Plan prior to public release, and monitor the implementation of the Action Plan, providing us with specific advice on the importance of issues within the LEAP area. They will help to promote and develop initiatives of benefit to the environment within the LEAP area. The Steering Group members are:

| Name | Representing |
|----------------|---|
| Mr R Archer | Royal Society for the Protection of Birds |
| Ms N Barker | Exe Estuary Management Partnership - Devon County Council |
| Mr J Berry | National Farmers Union |
| Mr A Box | British Canoe Union |
| Mr P Burrows | Mead Specialty Papers |
| Mr I Cook | Devon Fisheries Forum and Area Environment Group |
| Mr W Copp | Council for the Protection of Rural England (Devon) |
| Mr S Day | English Nature |
| Miss T Fowler | Mid Devon District Council |
| Mr R Goddard | Exeter & District Angling Association |
| Mr D Lloyd | Exmoor National Park |
| Mr H Maund | Trout Farmers (British Trout Association) |
| Mr E Newton | John Heathcoat & Co Ltd and Area Environment Group |
| Mr J Nott | Exeter City Council |
| Mr R Retallick | National Federation of Anglers |
| Mr H Thresher | Crediton Fly Fishers |
| Mr I Voysey | River Exe Netsmen Association |
| Mr M Williams | South West Water Limited |

1.5 Working With Others

We can only deliver long-term environmental improvement by working with others, building partnerships with those who share common objectives, and developing links with the community.

Local Agenda 21 – This is the global action plan endorsed at the United Nations Conference on Development and the Environment in 1992⁴. It is designed to achieve sustainable development within all levels of our society.

Within the catchment Local Authorities are assisting their local communities in developing strategies and action plans for sustainable development.

Mid Devon District Council is supporting a LA 21 Steering Group and there are a number of active groups in the area. Council Officers are also supporting community initiatives such as Mid Devon Community Recycling and developing projects with organisations such as the Farming and Wildlife Advisory Group.

East Devon District Council has a proactive Local Agenda 21 sub-committee that raises awareness of sustainable development issues to other committees through a series of presentations. Additionally an LA21 Working Group has been set up to advance the Council's contribution to sustainable development in East Devon, and another external LA21 group will develop LA21 work in the community.

Teignbridge District Council has accepted Agenda 21 into the mainstream of the Council business by adoption of it as a core principle of the elected members. The ethics of sustainable development is applied to all the Council's policies and services.

Exeter City Council produced an LA21 Strategy in 1996, in consultation with local people, which will be reviewed in 2001. Support is given to community initiatives.

Exmoor National Park Authority endorses the Statement on National Parks, Sustainability and Work on Local Agenda 21; this statement provides a commitment to the pursuit of sustainability and Local Agenda 21 and forms the basis for future action.

North Devon District Council is committed to real, practical changes that support sustainable development and aims to lead by example. Four Area Committees with Locality Agendas translate strategic objectives into local action to meet local needs and aspirations.

West Devon Borough Council's LA21 process is led by West Devon Environmental Network and facilitates the only community-led LA21 process in the UK through the creation of partnerships.

Development Plans – These are produced by Local Authorities to guide the way land is developed. We have limited control over the development of land, but we provide advice and guidance to Local Authorities and work with them to develop policies that minimise the impact of development of the environment.

Non-Statutory Plans – We work with a number of other organisations to develop partnerships and collaborative projects. The LEAP is one of a number of separate, but related environmental initiatives that aim to protect the management of the environment. Other non-statutory plans include:

- The Nature of Devon: A Biodiversity Action Plan (BAP)⁷
- Devon's Local Agenda 21 Network Issues Report⁸
- Lyme Bay and South Devon Shoreline Management Plan⁹
- Exe Estuary Management Plan
- Exmoor Biodiversity Action Plan
- Blackdown Hills AONB Management Plan
- East Devon AONB Management Plan
- Exeter City Council Leisure Strategy

2 OVERVIEW OF THE LEAP AREA

The area covered by this LEAP comprises the entire catchment of the River Exe, covering an area of approximately 1,530 km². It drains diverse habitats ranging from the moorland of Exmoor National Park at the headwaters of the River Exe, to the Exe Estuary at Exmouth, see Map 1. This area will subsequently be referred to as 'the catchment'.

The River Exe rises on Exmoor at a height of 450 metres Above Ordnance Datum (AOD) and descends 87.2 kilometres from its source to the tidal limit, and the length designated as Main River is 82.7 kilometres (see table below). The main tributaries of the River Exe are the River Culm, River Barle, River Clyst and River Creedy (Map 1).

Exeter City is the largest of the settlement areas within the catchment with a population of 98,149 (1991 census). Other main settlements in the catchment include Crediton, Tiverton, Cullompton, Exmouth and Dawlish. The total population of the catchment is estimated at around 235,100 (1991 census).

The principal industries in the catchment are agriculture and tourism. A large proportion of the catchment area is farmed (approximately 80 per cent) and mainly supports dairy and other livestock on grassland with a lesser proportional area under crops. Tourism is a major source of income and is concentrated mainly around the city of Exeter, the beaches of Dawlish and Exmouth, and on Exmoor. Wholesale and retail distribution and manufacturing industries are also present in the catchment.

Key Statistics

| | | |
|--|---|---------|
| Area of Catchment | 1,530 km ² | |
| Main River Length (km) | Exe | 82.7 km |
| | Culm | 45.3 km |
| (upstream of Tidal Limit*) | Barle | 35.7 km |
| | Clyst | 25.1 km |
| | Creedy | 24.3 km |
| Controlled Water Length (Monitored for Water Quality Purposes) | 656 km | |
| Approximate Population (1991) | 235,100 | |
| Main Settlements | Exeter, Crediton, Tiverton, Cullompton, Exmouth Dawlish | |
| Administrative Areas | Mid Devon District Council, East Devon District Council, Teignbridge District Council, Exeter City Council, Exmoor National Park, North Devon District Council, West Devon Borough Council, Taunton Deane District Council, West Somerset District Council. | |

* Tidal Limit as defined in Section 192 of the Water resources Act, 1991

2.1 1999 Compliance with River Quality Objectives (RQO)

We aim to maintain and, where appropriate, improve the quality of water and we achieve this by setting water quality targets for the catchment based on River Quality Objectives (RQOs). These targets protect recognised uses; standards laid down in EC Directives and international commitments (the system is described in the Action Plan³). The Exe Catchment has 88 stretches of monitored river totalling 559.4 km. RQOs are set using a classification scheme known as the River Ecosystem (RE) Classification which comprises five hierarchical classes (see table below). These classes reflect the chemical quality needed by different types of river ecosystems. Where we are unable to identify solutions or resources to resolve water quality problems we have set a Long Term RQO (LT RQO).

| Class Description: (RE Class) | |
|-------------------------------|--|
| RE1 | Water of very good quality suitable for all fish species |
| RE2 | Water of good quality suitable for all fish species |
| RE3 | Water of fair quality suitable for high class coarse fish populations |
| RE4 | Water of fair quality suitable for coarse fish populations |
| RE5 | Water of poor quality which is likely to limit coarse fish populations |

For this review, the 1999 RQO compliance assessment is based on data collected over three years, between 1997 and 1999. The 1999 compliance with River Quality Objectives is shown on Map 2 (where a Long Term RQO is applicable it is noted within square brackets). Of the 88 monitored stretches in the catchment three stretches significantly failed to meet their current RQO and six stretches marginally failed to meet their RQO.

A comparison with the 1998 compliance assessment reported in the Action Plan (July 2000) shows a decrease in the number of stretches significantly failing their RQO (4 for 1998 and 3 for 1999). It also shows a decrease in the number of stretches marginally failing their RQO (13 for 1998 and 6 for 1999).

We have also assessed whether river stretches met their Long Term RQO. There are 11 stretches that significantly failed to meet their LT RQO and 6 stretches that marginally failed to meet their LT RQO.

Compliance with Long Term RQOs has deteriorated slightly from 1998 to 1999, with an increase in the number of stretches significantly failing their Long Term RQO (9 for 1998 and 11 for 1999). However, there is a reduction in the number of stretches marginally failing their Long Term RQO (8 for 1998 and 6 for 1999).

The causes of these failures are identified under Issues 1, 2, 3, 4 and 7.

2.2 EC Directive Compliance

EC Shellfish Waters Directive¹⁰: The Directive *on the quality required of shellfish waters* is concerned with the protection of shellfish populations and lays down the requirements for the quality of designated waters. It aims to safeguard shellfish populations from harmful consequences resulting from the discharges of polluting substances into associated waters. Following a consultation exercise by the Department of Environment, Transport and the Regions (DETR), (now the Department for Environment, Food and Rural Affairs (DEFRA), the Government announced on 8 July 1999 a revision of designated EC Shellfish Waters. This resulted in an area on the western side of the Exe Estuary being designated as a Shellfish Water (see map in Appendix One). We are responsible for controlling discharges to this area to ensure the requirements of the Directive are met. The designated Shellfish Water in the LEAP area met the standards of the Directive in 1999.

EC Shellfish Hygiene Directive¹¹: This Directive *laying down the health conditions for the production and the placing on the market of live bivalve molluscs* is concerned with the quality of the shellfish themselves, rather than the environment in which they live. Shellfish production areas have been designated and a classification system (A to C) has been introduced based on the level of treatment the shellfish require before sale for human consumption. Local Authorities conduct shellfish monitoring and the results are collated nationally by CEFAS on behalf of the Food Standards Agency. The mussel and oyster (*Crassostrea gigas*) beds known as "All Western Beds" both achieved Class B in 1999.

EC Bathing Waters Directive¹²: This Directive aims to protect the environment and public health of bathing waters, by reducing pollution entering identified bathing areas. There are six designated Bathing Waters in the LEAP area, Exmouth, Dawlish Warren, Dawlish (Town), Dawlish (Coryton Cove), Sandy Bay and Teignmouth (Holcombe). All of the Bathing Waters passed the mandatory standards of the Directive in 2000. Exmouth and Dawlish Warren were also compliant with the more stringent guideline standards of the Directive in 2000.

EC Dangerous Substances Directive¹³: This Directive is concerned with controlling certain substances considered harmful which are discharged to the aquatic environment. There were no exceedences of List I substances in 1999. However, there were exceedences of List II substances at one site in the catchment in 1999.

The Environmental Quality Standards (EQS) for copper and zinc were exceeded at the monitoring point downstream of Dunkeswell STW in 1999. Copper sampling was added to the monitoring programme for 2000/2001 for both sampling points at Dunkeswell STW final effluent and upstream of Dunkeswell STW on the Madford River. Unfortunately the latter point was omitted from the sample run but was sampled from 2000. We will analyse the results once they become available and investigate further. **New Action 2m.**

We reported in error, an exceedence for copper downstream of Dulverton in 1998 in the Exe Action Plan. The site actually failed for zinc only in 1998 and was compliant for both copper and zinc in 1999. As a result the proposed copper analysis of the upstream site and final effluent at Dulverton STW will not be continued. We will continue to review the downstream data in subsequent years and take further action if failures recur. **Action 2k.**

EC Surface Water Abstraction Directive¹⁴: This Directive *concerns the quality required of surface water intended for the abstraction of drinking water* to ensure that surface water abstracted for drinking water purposes meets certain standards and receives adequate treatment before entering the public water supply. There are five sites in the LEAP area which are monitored under this Directive. The standards for colour and dissolved iron were exceeded at Thornes Intake at Kenton in 1999. This site has a history of exceedences for colour and dissolved iron, which are not connected to pollution incidents. A waiver has been applied for. We will continue to monitor as part of our routine monitoring programme.

EC Freshwater Fish Directive¹⁵: This Directive is concerned with ensuring the water quality in designated stretches of water is suitable for supporting fisheries. One site failed to meet the standard of the Directive in 1999. The Grand Western Canal from Fenacre Bridge to the basin at Tiverton failed the dissolved oxygen standard. The low dissolved oxygen levels are thought to be associated with algal die back. Please refer to **Actions 4b and 4c.**

EC Habitats Directive¹⁶: This Directive means that we have to review all authorisations and other permissions that have been previously issued, as well as our own activities, to establish whether or not they are adversely affecting Special Protection Areas (SPAs - designated under the EC Birds Directive¹⁷) or candidate Special Areas of Conservation (cSACs - to be designated under the EC Habitats Directive), collectively known as Natura 2000 sites. If existing authorisations are causing significant damage, we are required to modify or revoke them. We have embarked on a twelve-year programme (1998-2010) to carry out this review, consisting of a four-stage process. We plan to complete stage 1 by September 2001. A moderation exercise has resulted in additional features and new sites being proposed for designation. We assess all new applications for their potential impact on Natura 2000 sites.

3 PROGRESS WITH ACTIONS FROM THE EXE ACTION PLAN

The following pages give updates for the actions from the Exe LEAP for the last year up to August 2001. The current status of each action is indicated by the following symbols in the left-hand column of the action tables:

| | | | |
|---|------------------------|---|----------------------------|
| ✕ | New Action | ● | Completed/Routine Action |
| ▼ | Started/Ongoing Action | ■ | Delayed/No Progress Action |

Key to tables:

| | | | |
|-----|--------------------------------------|------|------------------------------|
| n/a | Costs not attributable to the Agency | <1k | Costs to Agency under £1,000 |
| u/k | Costs to Agency are unknown | p.a. | Per Annum |

Issue 1: Impact of Farming

A large proportion of the catchment area is farmed (approximately 80 per cent) and supports mainly livestock. Land management and agricultural activities impact on the environment in several ways, but over the last ten years there have been significant improvements by farmers in farm waste storage facilities and disposal methods. This has resulted in a reduction in the number of point source pollution incidents attributed to farming and has contributed to an overall improvement in water quality. Work still needs to be done to solve the problem of diffuse pollution and we are working with farmers to identify 'best farming practices', which help them to conserve important resources such as soil, pesticides and fertilizers including slurries and manures.

Poor land management practices can result in soil degradation and soil erosion which in turn can severely affect watercourses. A national project to produce risk assessment maps on a geographic information system (GIS) is ongoing and it is expected to be reported upon at the end of March 2002. **Action 1a.**

Research carried out by the University of Exeter, funded by the Agency and the National Environment Research Council, on the River Torridge has been completed and a report was produced in the spring of 2000¹⁸. The catchment surface was found to be the principal source of suspended sediment. However, the fine sediment found in the artificial redds originated primarily from channel bank sources. Further work is needed on other catchments in order to confirm the wider applicability of the results obtained from the River Torridge. The techniques used to determine the impact of fine sediment on salmonid redds are being adopted nationally and the Agency is developing a national project on silt intrusion. **Action 1c.**

The River Kenn from source to the A38 Bridge at Kennford was compliant with its RQO of RE3 in 1999 but marginally failed to meet its Long Term RQO of RE2 in 1999 as a result of elevated BOD. The cause is catchment-wide erosion and associated runoff. In the past, farm campaigns have been carried out, but due to the nature of the catchment, runoff from exposed bare soil surfaces may continue to cause failure of the LT RQO when heavy rainfall occurs. Several farms in the Kenn catchment have been identified and will be visited this year to raise awareness of the problems associated with diffuse agricultural pollution. **Action 1e.**

The Alphin Brook from Dymonds Bridge to the Footbridge at Alphington marginally failed to comply with its RQO of RE2 in 1999 due to elevated BOD (see also Action 2I). Farms in the catchment will be visited this year to promote the Agency's 'Diffuse Pollution from Agriculture' leaflet and give general pollution prevention guidance. **Action 1e.**

The Clyst from Clyst Hydon to Clyst St Lawrence complied with its RQO of RE4 in 1999, but significantly failed to comply with its LT RQO of RE2 in 1999 as a result of low DO. It also marginally failed to meet its LT RQO of RE2 in 1999 for BOD. The stretch in question is susceptible to low flows in the

summer and has limited potential for re-oxygenation. These two issues are believed to be the cause of the low DO. We will investigate this further. **Action 1f.**

The Clyst from Clyst St Lawrence to Ashclyst Farm complied with its RQO of RE3 in 1999, but marginally failed to meet its LT RQO of RE2 in 1999 as a result of elevated BOD. The cause of which may be due to poor farm drainage arrangements at a nearby farm. Improvements to the farmyard dirty water system were completed in early 2001. We plan to carry out a wet weather survey this year to assess the effectiveness of these works. **Action 1i.**

The Clyst from Ashclyst Farm to the B1381 Bridge at Broadclyst complied with its RQO of RE3 in 1999, but marginally failed to meet its LT RQO of RE2 in 1999 as a result of elevated BOD. The cause is believed to be associated with soil runoff in wet weather. Surveys are planned for this year. **Action 1g.**

The Binneford Water from source to the Creedy confluence marginally failed to comply with its RQO of RE2 in 1999 as a result of elevated BOD. The last failing sample was in 1997, and therefore, we will not undertake any further investigations at this site, but will continue to monitor and will take action should failing samples recur in the future. **Action 1k.**

The River Culm from source to Bridgehouse Bridge Clayhildon, and from Bridgehouse Bridge Clayhildon to Culmstock both were compliant with their RQOs of RE2 in 1999, but both significantly failed to meet their LT RQO of RE1 due to elevated BOD. The cause is believed to be associated with the free-range pig farms in the catchment. A dry weather survey has already been completed and a wet weather survey will be undertaken this year to establish the areas which are causing most concern. **Action 1h.**

The River Weaver from the source to Higher Weaver complied with its RQO of RE3 in 1999, but marginally failed to meet its LT RQO of RE2 in 1999 as a result of elevated BOD. The cause is believed to be runoff from bare fields used for root vegetables or maize production, we plan to carry out a wet weather survey this year. **New Action 1n.**

The Spratford Stream from Leonard Moor Bridge to Above Strong Rawle and Strong marginally failed to comply with its RQO of RE2 in 1999 as a result of elevated BOD. Farm campaigns were carried out in 2000 and we expect improvements in water quality in the future. We continue to monitor and we will take action should further failing samples occur. **Action 1m.**

The Sheldon Stream from source to the Culm confluence marginally failed to meet its RQO of RE2 in 1999 as a result of elevated BOD, farm campaigns were carried out in 2000 and we expect improvements in water quality in the future. We will continue to monitor and we will take action should further failing samples occur. **Action 1m.**

| No. | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|---|--------------------------------------|------------------|-------------------|------|--|
| 1a ▼ | Map soil vulnerability and risk to watercourses. | Agency | 01/07/00 | 31/03/02 | 2k | This action is part of a national project that will report at the end of March 2002. |
| 1b ▼ | Raise awareness of soil conservation with farmers. | Agency, DEFRA, NFU, FWAG, Landowners | 01/07/00 | 31/03/04 | u/k | An ADAS campaign was carried out in the River Creedy area. This action is also part of a national project. |
| 1c ▼ | Research soil erosion and degradation and disseminate findings. | U of Exeter, IGER, Agency | 01/07/00 | 31/03/04 | u/k | The research has been completed on the River Torridge and the methodology used is being adopted to develop a national project. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|---|--------------------------|------------------|-------------------|----------|---|
| 1d ▼ | Produce 'Best Practice' leaflets for land management and target dissemination. | Agency, NFU, DEFRA, FWAG | 01/07/00 | 31/03/05 | 1 k p.a. | The booklet has been completed and the dissemination strategy is being discussed at Head Office. |
| 1e ▼ | Promote the Agency's 'Diffuse Pollution From Agriculture' leaflet among farmers in Kenn and Alphin Brook Catchments. | Agency | 01/07/00 | 31/03/02 | u/k | Farms in the Kenn and Alphin Brook catchments will be visited in 2001. A New Action 2I has been created for the Alphin Brook under Issue 2. |
| 1f ▼ | Review the results of the monitoring of the River Clyst from Clyst Hydon to Clyst St Lawrence to see if RQO failure recurs. | Agency | 01/07/00 | 31/03/02 | u/k | This stretch was compliant with its RQO of RE4 in 1999, but significantly failed to meet its LT RQO of RE2. We will continue to monitor and investigate further and make recommendations. |
| 1g ▼ | Review the results of monitoring of the River Clyst at the B1381 Bridge at Broadclyst to see if RQO failure recurs. | Agency | 01/07/00 | 31/03/02 | <1k | This stretch met its RQO of RE3 in 1999, but marginally failed its LT RQO. Investigative surveys are planned for 2001, but have been delayed by the Foot and Mouth crisis. |
| 1h ▼ | Monitor the effects of the farm campaign on the River Culm to determine whether further action is required to achieve LT RQO. | Agency | 01/07/00 | 31/03/02 | <1k | Two stretches of the Culm significantly failed to comply with their LT RQOs. A dry weather survey has been completed and a wet weather survey is to be undertaken in 2001 to establish the areas of most concern. |
| 1i ▼ | Review the monitoring data on the Dart and Creedy to see if failures recur following the farm visits campaign. | Agency | 01/07/00 | 31/03/02 | <1k | Both the Dart and Creedy were compliant in 1999, we continue to monitor the water quality and will take action if future failures are recorded. |
| 1j ▼ | Review the monitoring data and decide if further action on the River Dart from B3137 Bridge Bradley to the Exe confluence is required. | Agency | 01/07/00 | 31/03/02 | u/k | This stretch was compliant in 1999, however, we have started a series of farm campaigns that will be completed 2001/2002. |
| 1k ▼ | Review the water quality monitoring data for the Holly Water and Binneford Water to determine whether further action is required following pollution prevention visits 1999/00. | Agency | 01/07/00 | 31/03/02 | <1k | The Holly Water was compliant in 1999. The Binneford Water marginally failed its RQO of RE2 in 1999. We will continue to monitor the water quality of these stretches and take further action if required. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------------|---|----------------|------------------|-------------------|------|---|
| 1l ▼ | Investigate the causes of failure on the Polly Brook, the Clyst from Clyst St Lawrence to Ashclyst Farm and the Shobrooke Lake. | Agency | 01/07/00 | 31/03/02 | u/k | All these stretches were compliant with their RQOs in 1999, but the Clyst from Clyst St Lawrence to Ashclyst Farm stretch marginally failed its LT RQO. A wet weather survey of this stretch is planned for 2001, but has been delayed due to the Foot and Mouth crisis. We were unable to carry out the investigations on the Polly Brook and the Shobrooke Lake because of resource limitations. Given their compliant status in 1999, we do not intend to undertake the surveys this year. We will review the need for further work should further failures be recorded. |
| 1m ▼ | Review water quality data for the Spratford and Sheldon Streams following completion of the farm visits campaign. | Agency | 01/07/00 | 31/03/02 | u/k | Both stretches marginally failed their RQOs in 1999. Farm campaigns were undertaken in 2000. We await compliance results, and hope to see improvements in water quality in the future. |
| New 1n ✕ | Investigate the RQO failure on the River Weaver from source to Higher Weaver. | Agency | 01/04/01 | 31/03/02 | <1k | We will report on this new action in the Second Annual Review. |

Issue 2: Impact of Effluent Discharges

We regulate the disposal of effluent to surface and groundwaters by issuing consents to control discharges, including treated sewage from water companies and private properties, industrial and farm wastes. Rivers and coastal waters can naturally render harmless the main constituents of many effluents and with proper effluent disposal controls the environment will not be damaged.

We aim to maintain and, where appropriate, improve the quality of water and we achieve this by setting water quality targets for the catchment based on River Quality Objectives (RQOs) to protect recognised uses, standards laid down in EC Directives and international commitments (see Map 2).

Sewage Treatment Improvement Plans: The Water Companies' investment programme for the period 2000-2005 is known as Asset Management Plan 3 (AMP3). AMP3 has been developed along guidelines agreed between ourselves, the Department of the Environment, Transport and the Regions (DETR) (now the Department for Environment, Food and Rural Affairs (DEFRA), the water services companies and the Office of Water Services (OFWAT). We have agreed with DETR which sewage discharges require improvement under AMP3. OFWAT have completed a review of water prices which allows for this programme of environmental investment and enable the companies to make the environmental improvements by 2005. Many of these schemes will be delivered before 2005.

Two schemes, Dawlish and Cullompton, were due to be completed by 31 March 2001. Dawlish was delivered on time but improvements to Cullompton STW have been delayed by work on the trunk sewer.

Improvements to the following STWs will be carried out in AMP3.

| STW | Receiving Water | Required Treatment Level | Investment Driver | Latest End Date |
|--------------------|---------------------------|--|----------------------------|---|
| Exton North | Exe Estuary | Secondary | UWWTD | 31 March 2005 |
| Exton South | Exe Estuary | Secondary | UWWTD | 31 March 2005 |
| Countess Wear | Exe Estuary | UV disinfection and 10 spills/year | Shellfish Waters Directive | 31 August 2001 |
| Dawlish | Sea | UV (in lieu of outfall improvement) | UWWTD | 31 March 2001 (Completed on time) |
| Exeter Argyll Road | Duryard Stream | Improved treatment | UWWTD and RQO compliance | 31 March 2003 |
| Dulverton | River Barle | Increase in flows to full treatment | UWWTD and RQO compliance | 31 March 2004 |
| Cullompton | River Culm | Improved treatment | UWWTD | 31 March 2001 (scheme not yet complete) |
| Hemyock | River Culm | Increase in flows to full treatment and improved treatment | UWWTD and RQO compliance | 31 March 2002 |
| Starcross | Exe Estuary | UV disinfection and 10 spills/year | Shellfish Waters Directive | 31 August 2002 |
| Dunkeswell | Dunkeswell Stream | Screening of storm discharge | UWWTD | 31 December 2004 |
| Brushford | River Barle | Increase in flows to full treatment and screening of storm discharge | UWWTD | 31 March 2004 |
| Shute | Tributary of River Creedy | Improved treatment | UWWTD | 31 December 2004 |

AMP3 also includes a programme of improvements for intermittent sewage discharges, i.e. those which only operate in storm or emergency conditions, for example, combined sewer overflows (CSO). There are over 100 CSOs in the Exe Catchment. Approximately 35 intermittent discharges in the Exe Catchment are to be improved in AMP3 by 2005.

Restrictions on development: There are currently a number of settlements where development is restricted due to insufficient capacity in the sewerage infrastructure and we recommend that development be constrained: Morebath, Halberton, Pennymoor, Uffculme, Exton (North and South), Stoke Canon, Kenn and Kennford, Tedburn St Mary.

Of these, Exton (North and South) and the storm discharges from Kenn and Kennford are within the AMP3 scheme for improvements.

EC Bathing Waters Directive: Sewage flows from Holcombe were transferred to the new works at Dawlish, from December 2000. Holcombe Stream investigation identified agricultural inputs as the major factor in the bacterial contamination of this stream. To reduce stock access to the watercourse we have contributed to the provision of fencing and water troughs in the fields next to the stream. **Action 2a.**

Investigations into the sources of debris found on Dawlish Warren beach are ongoing and we will monitor for improvements following the installation of the new STW at Dawlish. We suspect that ineffective screening of the storm discharges from Countess Wear STW may have contributed to the debris on the beach. Improvements to the screens have been made which should reduce the amount of debris within the storm discharges. **Action 2d.**

The River Exe from Collipriest to below Tiverton STW significantly failed to meet its RQO of RE1 in 1999 as a result of elevated Biochemical Oxygen Demand (BOD). Due to resource limitations we were not able to progress this action in 2000. We do not plan to undertake an investigation in 2001 as the last failing sample was a single high result in August 1997. We will continue to monitor the water quality of the stretch as part of our routine work and will take action if further failing samples are recorded. This action is now completed. **Action 2f.**

The River Clyst from source to Clyst Hydon marginally failed to comply with its RQO of RE4 in 1999 and significantly failed to meet its LT RQO of RE2 in 1999 as a result of elevated total ammonia (NH₃), unionised NH₃, BOD and low DO. There have been some problems finding a suitable monitoring site for this stretch. This means that the results may not be representative of water quality in the stretch as a whole. This problem has now been addressed and we are seeking to move the sampling point to a more representative location upstream of the local school discharge, but below the mixing zone of the next upstream consented discharge, (EDDC STW discharge at Park Close). **Action 2h.** The other consented discharge in this stretch is the farm effluent discharge from Langford Court South. However, improvements to prevent contaminated yard runoff entering the stream via the discharge have been made at the farm and we are monitoring downstream of the farm discharge to assess the results. **New Action 2n.**

The Alphin Brook from Dymonds Bridge to the Footbridge at Alphington marginally failed to comply with its RQO of RE2 in 1999 due to elevated BOD (see also Action 1e). Work within the catchment in connection with the RQO non-compliance has identified numerous private properties with unsatisfactory sewerage arrangements. Whilst these are not thought to be a major cause of non-compliance there is a localised impact and we will be seeking improvements. **New Action 2l.**

The North Brook from source to the Normal Tidal Limit complied with its RQO of RE3 in 1999, but marginally failed to meet its LT RQO of RE2 as a result of elevated BOD. There are several factors that may be having an impact on the North Brook. These include the discharges from combined sewer overflows (CSOs) and the leachate from several closed landfill sites, most notably Mincinglake, which discharge into the watercourse. Four of the CSOs are due for improvement during the Water Companies Asset Management Plan 3 (AMP3) period 2000-2005. **Action 2i.** Exeter City Council has started installing a reed bed treatment system to treat the watercourse downstream of the Mincinglake closed landfill site. We will monitor the effectiveness of the installation and any further works, therefore we have opened a **New Action 3f** under Issue 3.

The River Culm below Cullompton STW to 'Below Weir' was compliant with its RQO in 1999. There are three significant discharges into this stretch; Devon Valley Mill, Hele Village STW and Bradninch STW. Devon Valley Mill is currently applying for an Integrated Pollution Prevention Control (IPPC) Permit, which is required under recent legislation, (Pollution Prevention and Control (England and Wales) Regulations 2000). The process of applying for the permit will involve a review of many of the site activities with the aim of improving the site's environmental performance. Once a permit has been issued the Agency will check that the site operates in compliance with the permit. **Action 2j.**

The River Culm from 'Below Weir' to downstream of Silverton Mill met its RQO of RE3 in 1999, but significantly failed to meet its LT RQO of RE2 in 1999 as a result of elevated BOD. In terms of BOD load, by far the most significant discharge into this stretch has ceased to operate, namely Silverton Mill. The Mill closed for paper making in August 1999, removing a large BOD load from the river. However, there are approximately 50 houses whose sewage effluent is still treated at the Paper Mill's effluent treatment plant. It

is proposed to re-direct this sewage to Silverton STW, however, no progress on this issue has been made.
Action 2j.

The Dunkeswell Stream from source to the Madford confluence marginally failed to comply with its RQO of RE1 in 1999 as a result of elevated BOD and significantly failed its RQO of RE1 in 1999 due to elevated total ammonia (NH₃). The main discharge from Dunkeswell STW has been relocated to the Madford River, but the storm overflow still discharges to the Dunkeswell Stream. Improvements to the storm overflow are planned under AMP3 for completion by 31 December 2004. An investigation into the RQO failures was planned for 2001, but has been delayed until 2002, because of the Foot and Mouth crisis.

Action 2g.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|--|-----------------|------------------|-------------------|------|--|
| 2a ▼ | Transfer flows for Holcombe to the new STW at Dawlish by the end of March 2001. Draw conclusions on Holcombe Stream investigation and recommend actions accordingly. | SWW Ltd, Agency | 01/07/00 | 31/03/02 | n/a | Since December 2000, sewage flows from Holcombe have been transferred to the new works at Dawlish. Stock access to the Holcombe Stream has been reduced. We hope to see these improvements reflected in the 2001 bathing survey results. |
| 2b ● | Ensure East Devon District Council rectify the household misconnections from the Littleham Council Estate. | EDDC, Agency | 01/07/00 | 31/03/01 | <1k | All sewage from this estate is now directed to the foul sewer. This action is now completed. |
| 2c ● | Ensure SWW Ltd work to achieve no further breaches of UV conditions on their discharge consent for Exmouth STW. | SWW Ltd, Agency | 01/07/00 | 31/03/02 | <1k | Improvements to Exmouth's UV disinfection system were completed in August 2000, and we continue to monitor for consent compliance purposes. This is part of our routine work and therefore this action is closed. |
| 2d ▼ | Investigate sources of debris found on Dawlish Warren beach (2000). Following AMP2 scheme completion, review incidence of sewage debris on beach (2001). | Agency | 01/07/00 | 31/03/02 | <1k | Investigations are ongoing and we will assess whether less debris is washed up on the beach following the AMP2 improvements at Dawlish STW. |
| 2e ▼ | Review the monitoring data and decide if further action is required for the River Creedy from Ashridge Bridge to Creedy Bridge. | Agency | 01/07/00 | 31/03/02 | <1k | This stretch was compliant with its RQO of RE2 in 1999. We continue to monitor the water quality and will take action if further failing samples are recorded. |
| 2f ● | Investigate causes of failure of the River Exe from Collipriest Tiverton to below Tiverton STW. | Agency | 01/07/00 | 31/03/01 | u/k | As the last failing sample was a single high result in August 1997 we do not plan to progress this Action. This action is now completed. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------------|---|------------------------|------------------|-------------------|------|--|
| 2g ▼ | Review the results of the monitoring of the Dunkeswell Stream from its source to the Madford confluence to see if RQO failure recurs. | Agency | 01/07/00 | 31/03/02 | u/k | This stretch marginally failed its RQO of RE1 in 1999 and the planned investigation has been delayed by the Foot and Mouth crisis. |
| 2h ▼ | Review the results of the monitoring of the River Clyst from source to Clyst Hydon to see if RQO failure recurs as a result of the improvements. | Agency | 01/07/00 | 31/03/02 | u/k | This stretch marginally failed to meet its RQO of RE4 in 1999. We are currently resolving issues surrounding the sampling point location (see also New Action 2n for farm effluent discharge). |
| 2i ▼ | Review the monitoring results on the North Brook following AMP3 sewerage improvements and review the results of the Exeter City Council closed landfill investigation. | Agency | 01/04/01 | 31/03/04 | u/k | The North Brook met its RQO of RE3 in 1999, but marginally failed its LT RQO. We will monitor the impact of the AMP3 sewerage improvements in 2001. A New Action relating to the Mincinglake closed landfill has been opened under Issue 3, New Action 3f. |
| 2j ▼ | Liaise with the paper mill to seek improvements to Devon Valley Mill discharge. Review the monitoring results of the River Culm 'Below Weir' and 'd/s Silverton Mill' to see if failures recur. | Mill Owners, Agency | 01/07/00 | 31/03/02 | u/k | Devon Valley Mill is applying for IPPC Permit. We will review impact on receiving water. We will press for the residential properties at Silverton Mill to be connected to the STW at Silverton. |
| 2k ● | Include copper in the final effluent analysis for Dunkeswell and Dulverton STWs and in the upstream monitoring. | Agency | 01/07/00 | 31/03/02 | u/k | Copper sampling was added to the monitoring programme for 2000/01. This action is now completed, please see Section 2.2 and New Action 2m below. |
| New 2l ✕ | Ensure improvements are made to the sewerage arrangements for the residential properties in the Alphin Brook catchment between Dymonds Bridge and the Footbridge at Alphington. | Agency | 01/04/01 | 31/03/02 | u/k | We will report on this action in the Second Annual Review. |
| New 2m ✕ | Investigate the causes of copper and zinc failure downstream of Dunkeswell STW. | Agency | 01/04/01 | 31/03/02 | u/k | We will report on this action in the Second Annual Review. See Section 2.2. |
| New 2n ✕ | Monitor downstream of Langford Court South to assess the impact of the farm improvements. Recommend actions accordingly. | Agency | 01/04/01 | 31/03/02 | u/k | We will report on this action in the Second Annual Review. |

Issue 3: Impact of Waste Generation and Disposal

In the past the disposal of waste to landfill has been an attractive option, because it is initially inexpensive and suitable for many types of waste. However landfill sites have the potential to cause pollution, particularly older sites which have had fewer pollution control measures built into their original design.

The National Waste Strategy¹⁹ sets out the Government's framework for the management of waste. It identifies ways in which waste can be managed in a more sustainable way, and sets out targets for achieving that aim through reduction, re-use, recycling, composting and recovering energy.

We are keen to promote the reduction of waste at source and continue to support business waste minimisation groups. Groundwork EBS (formerly known as PAYBACK), a business environment association working in partnership with Business Link, local authorities and ourselves initiate schemes for businesses to reduce waste at source, as part of a wider initiative covering the whole county. The East Devon Waste Minimisation Programme is due to start in 2001. Interested companies should contact Groundwork EBS.

Ashley Closed Waste Disposal Site (Tiverton): Works have been carried out to address problems with the leachate management system but concerns still exist and further works are required. We will continue to liaise with the Local Authority. **Action 3a.**

Broadpath Landfill (Uffculme): This site is currently disposing of its leachate by pumping it to a collection tank and then transporting it away via road tanker to a licensed sewage treatment works for treatment and disposal. This is not a sustainable solution as it involves many tanker movements. The landfill operator is considering three options for alternative disposal routes. These include; leachate discharge to foul sewer and treatment at Uffculme STW; partial treatment on-site of the leachate prior to discharge to foul sewer and final treatment at Uffculme STW; full treatment on-site prior to discharge to the ground or the River Culm.

The Hollacombe Lake from source to the Pitt Stream confluence met its RQO of RE5 in 1999, but significantly failed to meet its LT RQO of RE2 as a result of low DO and elevated total ammonia. Leachate escaping from **Punchbowl Closed Landfill (Credlton)** has been identified as the cause. This is a long-term problem that may not be resolved quickly owing to the problems obtaining funding for improvements. We have received a review of the existing monitoring data which makes recommendations as to the most appropriate way forward for this site. We will continue to liaise with the Local Authority to ensure that environmental improvements are forthcoming. **Action 3b.**

Heathfield Farm Closed Landfill Site: This site is believed to impact on the Grindle Brook. We are currently working with the Local Authority to agree a suitable method of remediation to this problem. **New Action 3e.**

Mincinglake Closed Landfill Site: Exeter City Council is installing a reed bed treatment system to treat the North Brook downstream of the closed landfill site at Mincinglake (see Action 2i). We will monitor the effectiveness of the installation and further works will be undertaken if necessary. **New Action 3f.**

Landspreading of paper sludge and abattoir waste: The Department of Environment, Transport and the Regions (now DEFRA) are currently reviewing the landspreading exemption. We have made recommendations to improve the enforceability of the legislation and to tighten up the definition of agricultural benefit, to ensure the exemption is ensuring only *bona fide* recovery of waste material. We expect that a public consultation draft will be made available by DEFRA within the next 2-3 months. **Action 3d.**

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------------|--|--------------------------------------|------------------|-------------------|------|--|
| 3a ▼ | Ensure Devon County Council instigates a comprehensive site investigation at Ashley, Tiverton to determine a sustainable remediation package which can be implemented to an agreed time scale. | DCC, Agency | 01/07/00 | 31/03/02 | u/k | We have received information on some aspects of the site and will continue to encourage the Local Authority to look at the site as a whole, and to produce a suitable remediation package. |
| 3b ▼ | Complete and implement the remediation statement which will include improvements to the Punchbowl Landfill leachate collection system. | DCC, Agency | 01/07/00 | 31/03/03 | u/k | Consultants appointed by DCC are preparing a remediation statement, and we are working with them to agree a plan of action for the site. |
| 3c ● | Co-ordinate discussions between paper sludge, abattoir wastes and other producers for composting trials and subsequent recycling of the end-product to land. | Agency, Paper Mill, Abattoir, Others | 01/07/00 | 31/03/01 | <1k | Small scale trials have been carried out which have indicated that the process can be effective. No further trials are planned at present, but the companies involved are still interested in pursuing the method. This action is now completed. |
| 3d ▼ | Review the practice of spreading wastes to agricultural land and determine if agricultural benefit results, with materials being recycled. If not, the activity will not qualify for an exemption from requiring a waste management licence. | Agency | 01/07/00 | 31/03/02 | <1k | We are awaiting the result of a governmental review of the landspreading exemption. |
| New 3e ✕ | Liaise with the Local Authority to ensure that remediation is undertaken at Heathfield Farm. | DCC, Agency | 01/04/02 | 31/03/04 | n/a | We will report on this new action in the Second Annual Review. |
| New 3f ✕ | Liaise with Exeter City Council to ensure that the leachate treatment system is completed and works effectively at Mincinglake Closed Landfill Site. | ECC, Agency | 01/04/01 | 31/03/04 | n/a | We will report on this new action in the Second Annual Review. |

Issue 4: Potential for Eutrophication

Elevated levels of nutrients in a watercourse, particularly nitrate and phosphate, can result in the increased production of algae and higher plants. If algal production becomes excessive then this can affect the chemical, biological and aesthetic quality of a waterbody. This is called eutrophication. The major sources of nutrients in a watercourse are agricultural activities and sewage effluent.

The Urban Waste Water Treatment Directive requires higher standards of treatment for discharges to sensitive areas. Sensitive areas are those waters that receive discharges from the equivalent of 10,000 people or more and are or may become eutrophic in the future. The DETR (now DEFRA) decide if a watercourse is

sensitive based on monitoring information provided to them by the Environment Agency. The Agency also ensures that discharges to designated sensitive areas receive a high level of treatment.

We collected chemical and biological data from the Exe Estuary between 1998 and 2000. This data has been analysed and compared against the DETR (now DEFRA) criteria for eutrophication. A final report has been produced and is currently being evaluated by the Environment Agency's National Panel as to whether the report should be submitted to DEFRA for their consideration regarding Sensitive Area or Polluted Water designation. The report concluded that the Exe Estuary is showing signs that it may be suffering from eutrophication and is at risk of becoming more eutrophic in the future.

We continue to work in partnership with a number of organisations to produce a management plan for the Exeter Canal. The plan should provide a clear vision to ensure an environmentally and economically sustainable future for the canal, whilst respecting its conservation importance. It should provide a management framework that ensures a balance of uses, and allows clear communication and understanding between canal users and regulatory bodies. **Action 4a.**

The Grand Western Canal from source to Fenacre Bridge and from Fenacre Bridge to the Basin end both stretches complied with their RQOs of RE4 and RE5 respectively in 1999. However both significantly failed to meet their LT RQOs of RE3 as a result of depressed DO (source to Fenacre Bridge) and elevated BOD and low DO (Fenacre Bridge to end). The cause is suspected to be excessive growth of algae. **Action 4b.**

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|---|---------------------|------------------|-------------------|------|--|
| 4a ▼ | Contribute to Exeter Canal Management Plan in partnership with a number of other organisations. | ECC, Agency, EN, EH | 01/07/00 | 31/03/02 | 10k | We continue the partnership work to produce a management plan for the Exeter Canal. |
| 4b ▼ | Following installations of a flushing sluice in Grand Western Canal review monitoring data to see if failure recurs. | Agency | 01/07/00 | 31/03/02 | u/k | Sluice installed 1998. There has been some improvement in water quality. Both stretches were compliant with their RQOs, but significantly failed their LT RQOs. We will continue monitoring. |
| 4c ▼ | Support the development of a prescriptive management plan for the Grand Western Canal with Devon County Council including weed cutting programme. | DCC, Agency | 01/07/00 | 31/03/02 | u/k | A prescriptive management plan is in preparation, although the completion date is not yet determined. A weed cutting boat was purchased in July 2000 and will be utilised in the future. |

Issue 5: Impact of Development

The local planning authorities control development with the catchment, but we are a statutory consultee in the planning process. We work closely with the local planning authorities in order to influence the location and the type of development as an integral part of our work to protect and enhance the environment.

Increased development can put pressure on our water resources and sewage treatment works that can lead to failure of water quality targets (see Issue 2), increase the risk of flooding, cause air quality problems and generate extra waste (see Issue 3). However, development can also bring benefits such as the redevelopment of brown field sites and the clean up of contaminated land. We use the planning process to ensure that where damage occurs, appropriate mitigating measures are taken.

Development and flood risk: The Government expects the Environment Agency to produce information on flood risk matters so that the planning authorities can make informed and sound planning decisions. Effective floodplain protection must recognize the conflicts that exist between development and natural uses of the floodplain, and seek to reconcile them in a balanced and sustainable way.

Survey maps of floodplains for all the main rivers in the LEAP area have been completed and distributed to the local planning authorities. The second stage ('Level B' studies) which concentrate on areas of proposed development or sensitive flood risk areas and involves hydraulic modelling and investigation has started. Consultants acting for the Agency carried out a 'Level B' study for the town of Cullompton. The final study is expected by late summer 2001. This study will accurately identify the flood risk areas and associated return periods. Such information will be of great value when providing advice to the local planning authorities on development and flood risk.

A similar study is to be carried out for the River Lowman at Tiverton. The first stage of the study will be determining the relevant discharges and associated return periods. The first draft of the study was completed in June 2001. **Action 5a.**

Flood Warning: Improvements are programmed for the River Clyst by the installation of a new gauge at Clyst Honiton in 2001/2002. Information from the autumn 2000 floods is being used to improve flood warning in the Exe Catchment particularly for Exeter. Improvements to the Flood Warning Service across the region will be priority rated during 2001/2002. **Action 5b.**

Development and Historic, Geological and Archaeological Features: The catchment is important for its diverse landscape and as an area of considerable geological, archaeological and historic interest. The historic interest of this catchment is well documented with the Historical Atlas of South West England which was published in 2000. This provides an excellent historical resume of Devon & Cornwall and contains a wealth of information. Please also refer to the palaeochannel project Action 15f(iii). **Action 5c.**

Contaminated Land: The precise nature of contaminated land in the catchment is not fully known. New statutory guidance enacted via the 'Contaminated Land Regulations', which came into force on 1 April 2000 (these implement the contaminated land provision of the Environmental Protection Act 1990) will require local authorities to identify contaminated land within their area. Once these sites have been identified, it will be necessary to decide if remedial work is required. Any contaminated land issues will be reported in future Annual Reviews.

| No. | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|--|------------------------------------|------------------|-------------------|------|---|
| 5a ▼ | Carry out 'Level B' studies after close liaison with relevant planning authorities. | Agency, LPAs | 01/04/01 | 31/03/04 | 70k | The final 'Level B' study for Cullompton is expected in late summer 2001. The River Lowman study has commenced. |
| 5b ▼ | Implement improvements according to regional priority list for flood warning. | Agency | 01/04/02 | 31/03/04 | 10k | The priority rating will be developed in 2001/02. A new gauge is to be installed for the River Clyst this year. |
| 5c ▼ | Support production of document(s) covering entire area to provide a better understanding of archaeological/historic value of catchment, particularly water-based historic and archaeological features. | Agency, DCC, U of Exeter, EN, LPAs | 01/07/00 | 31/03/02 | u/k | We continue to seek opportunities to improve our understanding of the archaeological/history of the catchment. |

Issue 6: Recreation

Many people choose to live in the West County to take advantage of the recreational opportunities and spend their spare time enjoying our rivers and coasts. We have a duty to promote the use of inland and coastal waters and associated land for recreational purposes, and to take account of the less able. We have to carefully balance the potential conflicts between conservation and recreation when carrying out this duty.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|--|---|------------------|-------------------|------|---|
| 6a ■ | Mediate between interested parties to investigate opportunities for extending existing and creating new canoe access agreements. | Agency, BCU, RFOs, Fishing Associations | 01/07/00 | 31/03/05 | <1k | There is no progress to report for this action. |
| 6b ■ | Encourage discussion between interested parties to investigate the possibilities for improving canoe ingress and egress points within the catchment. | Agency, BCU, DCC, LPAs, RFOs, RETA, Fishing Associations, Fishing Lease Holders | 01/07/00 | 31/03/02 | <1k | There is no specific progress to report, although we continue to seek recreational enhancements through capital work appraisal, consenting activities as a statutory consultee in the planning process. |
| 6c ▼ | Encourage access improvements for walkers along the Exe Valley Way. | DCC, EDD, Agency, Fishing Associations | 01/07/00 | 31/03/02 | <1k | A partnership between ECC, DCC and Sustrans is currently developing a walking strategy for the area. A new bridge over the River Exe is proposed between the end of the Exwick Flood Relief Channel and Bonhay Road in Exeter. |
| 6d ▼ | Review and develop Rivercall system. | Agency, BCU, Fishing Associations | 01/07/00 | 31/03/02 | u/k | Rivercall has been relaunched and is operating well. We are looking to launch 5 web cams in Devon & Cornwall Areas to create a live link on the internet, to provide a visual link to the state of rivers at strategic points. |
| 6e ▼ | Develop and implement a management plan for the Exwick Flood Relief Channel. | Agency, Others | 01/07/00 | 31/03/05 | 5k | We have investigated in-channel enhancements, however modelling has shown difficulties in achieving this whilst retaining the flood defence performance of the scheme. We continue to explore recreational enhancements to the channel. |
| 6f ▼ | Review possibilities with other agencies for carrying out enhancements to Tiverton scheme. | Agency, MDDC, Others | 01/07/00 | 31/03/02 | <1k | MDDC is installing a ramped access to the Riverside Walk from Great Western Way and there is ongoing consultation to address the maintenance and design of this facility. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|---|---|------------------|-------------------|------|---|
| 6g ▼ | Develop and implement enhancements for Alphinbrook scheme. | Agency, Others | 01/07/00 | 31/03/03 | 5k | DCC have initiated a cycleway provision along this scheme. We work to complement this with another southern side cycleway between Clapperbrook Lane and Hennock Road. We are also developing structures within the lower section of the scheme to enhance the wetland interest of the immediate floodplain. |
| 6h ▼ | Support principle of development of South Devon Cycle Route and appraise options linking Agency-owned land. | Sustrans, EEMP, DCC, LPAs, Agency | 01/07/00 | 31/03/03 | u/k | DCC and Sustrans are developing this scheme and we continue with our involvement in the scheme's appraisal. The route detail through Exeter and either side of the Exe Estuary is underway. |

Issue 7: Unknown Causes of Water Quality Non-compliance

In some cases there are stretches of water that have failed the water quality standards, for which the cause is unknown. These are discussed below.

Aylesbeare Stream from source to the Clyst confluence was compliant with its RQO of RE3 in 1999, however we still have some concerns regarding the presence of sewage fungus below the works and we will continue monitoring and take further action if failing samples are recorded. **Action 7a.**

The Madford River from source to Dunkeswell Abbey complied with its RQO of RE1 in 1999. **The Madford River from Dunkeswell Abbey to the Culm confluence** was compliant with its RQO of RE2 in 1999 but significantly failed to comply with its LT RQO of RE1 due to elevated BOD and total ammonia. We believe that the failures are associated with agricultural problems. A series of farm campaigns were undertaken in the winter of 1999/2000 and we hope to see improvements in water quality in the future. **Action 7b.**

The Bolham River from source to Madford confluence met its RQO of RE2 in 1999, but significantly failed to meet its LT RQO of RE1 due to elevated BOD and total ammonia. The sampling point for this stretch is the same as that used for the Madford River from Dunkeswell Abbey to the Culm confluence stretch (see above).

The River Bathern from Ranscombe to the Exe confluence significantly failed to comply with its RQO of RE1 in 1999 due to elevated BOD. The cause of the elevated BOD is unknown and we plan to investigate in the winter of 2001. **Action 7c.**

Grindle Brook source to Clyst confluence marginally failed to meet its RQO of RE3 in 1999 and significantly failed to meet its LT RQO of RE2 in 1999 as a result of elevated BOD. The causes are unknown so we will endeavour to investigate this failure in the winter of 2001. **New Action 7e.** The closed Local Authority landfill site at Heathfield Farm also impacts upon this stretch see New Action 3e, under Issue 3.

The River Culm from below Silverton Mill to the Exe confluence met its RQO of RE3 in 1999, but marginally failed to meet its LT RQO of RE2 as a result of elevated BOD. The reason for this is unknown and will be investigated. **New Action 7f.**

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------------|---|----------------|------------------|-------------------|------|--|
| 7a ▼ | Review monitoring data to determine need for further action, following improvements at Aylesbeare STW. | Agency | 01/07/00 | 31/03/02 | u/k | This stretch was compliant in 1999, but we will continue monitoring and will take action if future failures occur. |
| 7b ▼ | Review monitoring data for the River Madford from source to the Culm confluence and decide if any further action is required. | Agency | 01/07/00 | 31/03/02 | u/k | Both stretches were compliant in 1999, but Dunkeswell Abbey to the Culm confluence significantly failed its LT RQO. We have carried out farm campaigns and expect to see water quality improvements in the future. |
| 7c ▼ | Investigate causes of failures on the River Bathern. | Agency | 01/07/00 | 31/03/02 | u/k | This stretch significantly failed to meet its RQO of RE1 in 1999 and we plan to undertake investigations in the winter of 2001. |
| 7d ▼ | Review Surface Water Abstraction Directive data at Wimbleball Reservoir and, if further failure occurs, initiate investigation. | Agency | 01/07/00 | 31/03/02 | u/k | Wimbleball Reservoir was compliant with the Surface Water Abstraction Directive in 1999, we will continue to monitor the water quality and will take further action if a failure occurs. |
| New 7e x | Investigate the failure on the Grindle Brook. | Agency | 01/04/01 | 31/03/02 | <1k | We will report on this new action in the Second Annual Review. |
| New 7f x | Investigate the failure on the Culm from Silverton Mill to the Exe confluence. | Agency | 01/04/01 | 31/03/02 | <1k | We will report on this new action in the Second Annual Review. |

Issue 8: Addressing Climate Change

Global temperatures are increasing. The Intergovernmental Panel on Climate Change believes that the release of CO₂ to the atmosphere from human activity is contributing to this warming. It is predicted that sea levels could rise between 12 and 67 cm over the next 50 years. This sea level rise is likely to result in the loss of coastal and estuarine habitats as habitats are 'squeezed' between the sea and the coastal defences.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|---|----------------|------------------|-------------------|------|--|
| 8a ■ | Identify potential habitat loss (and gain) within the Exe Estuary and coastline likely to result from sea-level rise and monitor actual change. | EN, Agency | 01/07/00 | 31/03/05 | u/k | No specific progress to report, but this issue will be addressed as part of the review of the Exe Estuary SPA, in line with requirements of the Habitats Directive (see also Section 2.2). |

Issue 9: Decline of Salmon Stocks

Nationally there are concerns that salmon stocks are declining, particularly the long-term decline of the larger, early-running salmon, which are believed to be genetically different from later-running stock. Many of the factors, which influence numbers of migratory fish returning to the river to spawn, fall outside our statutory responsibilities; for example, distant water fisheries and the Irish drift net fishery. This places particular importance on measures adopted locally to maximise the number of fish returning to spawn, and to ensure that conditions in the river system are favourable for successful spawning and survival. We will continue to campaign for a reduction in high seas netting, particularly the Greenland Faroes and Irish Drift Net Fisheries.

Progress on fisheries actions continues to be affected by a lack of funding and the national cuts of approximately £1.5 million 'Grant in Aid' money during 2001/2002 for salmonid areas will further restrict our work.

| No. | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|---|---|------------------|-------------------|------|---|
| 9a ▼ | Implement and enforce national salmon byelaws. | Agency | 01/07/00 | 31/03/05 | u/k | The national byelaws were implemented in 1999 and enforcement is ongoing. |
| 9b ▼ | Encourage voluntary catch and release of multi-sea-winter salmon not protected by byelaws. | Agency, RETA, Netsmen, RFOs | 01/07/00 | 31/03/05 | <1k | Progress on this action is ongoing. |
| 9c ■ | Produce Salmon Action Plan. | Agency, RFOs, RETA | 01/07/00 | 31/03/04 | 5k | Production of the Plan has been delayed until 2003/04 due to Government cuts in Fisheries funding. |
| 9d ▼ | Provide adequate mitigation for Wimbleball Reservoir construction. | SWW Ltd, Agency, RETA, Fisheries Associations | 01/07/00 | 31/03/05 | u/k | Negotiations are ongoing involving RETA and SWW Ltd. An ENTRUST funding bid for a major 5-year project in the catchment is currently under consideration. |
| 9e ■ | Investigate distribution, spawning activity and behaviour of spring salmon in the river to give us better information about their protection and enhancement. | Agency, RETA, RFOs | 01/07/00 | 31/03/02 | u/k | There has been no progress on this action. |
| 9f ■ | Work with CEFAS to investigate the effect of reported fish diseases on fish stocks in the catchment. | Agency, CEFAS, RETA | 01/07/00 | 31/03/05 | u/k | There has been no progress on this action. Sample collection was not possible because there were insufficient diseased fish present. |
| 9g ▼ | Assess option for a byelaw to limit the extent of drifting for sea-fish in the Exe Estuary to minimise illegal exploitation of salmonids. | DSFC, Agency, DEFRA, Netsmen | 01/07/00 | 31/03/02 | u/k | The Agency and other interested parties continue to monitor the situation. |

Issue 10: Decline in Brown Trout Populations

In common with many rivers in Devon, there have been concerns expressed by fisheries interests in the Exe Catchment that there has been a decline in the numbers of larger brown trout. We funded, in collaboration with the Wild Trout Society, a three-year project to investigate this problem. However, following the initial phase of the study it was found that there were no problems with wild trout in the Exe Catchment. Evidence demonstrated a decline on the rivers Taw, Torridge, Dart and Axe which will be targeted first for the study's recommendations. If the implementation is successful they may be applied to the Exe Catchment in the future. **Action 10a.**

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------|---|--|------------------|-------------------|------|---|
| 10a ▼ | Continue investigation into the decline of brown trout in the Devon rivers. Apply recommendations to the Exe where appropriate. | Agency, Wild Trout Society, RFOs, RETA, Fisheries Associations | 01/07/00 | 31/03/02 | 20k | Recommendations arising from the Devon trout decline study will be implemented first on the problem rivers. If successful they may be applied to the Exe Catchment. |

Issue 11: Barriers to Fish Migration

Some weirs and other obstacles in the catchment inhibit the migration of salmon and sea trout as they only permit migration during a limited range of river flows.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------|--|------------------------------------|------------------|-------------------|------|---|
| 11a ▼ | Develop and implement solutions to improve conditions for fish migration at St James', Perry and Exwick Weirs. | Agency, SWW Ltd, Weir Owners, RETA | 01/07/00 | 31/03/02 | u/k | Solutions for St James' weir are being finalised. No progress has been made with Perry or Exwick weirs. |
| 11b ■ | Improve conditions for fish migration on the River Creedy at Fordton Weir and Head Weir on the the Creedy. | Agency, Weir Owners | 01/07/00 | 31/03/03 | 5k | There has been no progress to report on this action. |
| 11c ▼ | Improve conditions for fish migration on the River Culm at Hele, Silverton, Higher and Lower Kingsmill. | Agency, Mill Owners | 01/07/00 | 31/03/04 | u/k | Hele and Silverton Mills have had passes installed. Outline design has been prepared for Lower Kingsmill, but lack of funds has limited progress. |
| 11d ▼ | Assess obstruction to fish migration on River Lowman. | Agency | 01/07/00 | 31/03/02 | u/k | Several obstructions have been identified. Improvement works at Chief Lowman have been completed. |
| 11e ▼ | Fisheries staff to visit problem abstraction sites and ensure that effective screens are installed. | Abstractors, Agency | 01/07/00 | 31/03/04 | u/k | Ongoing. |
| 11f ■ | Investigate options for installing a fish counter in the lower Exe. | Agency, RETA | 01/07/00 | 31/03/04 | 60k | There has been no progress to report on this action. |

Issue 12: Fish-eating Birds

Concerns are regularly expressed by various fishing interests that an increase in predation by fish-eating birds, principally cormorants, is adversely affecting the fishery. The results of a four-year research and development programme on inland fisheries in England and Wales were presented in London in September 1999. The Government sought the views from interested parties, including the Agency. We suggested that guidelines should be issued by the Government on how to demonstrate the impact on a fishery for culling applications to MAFF (now DEFRA). We will continue to support applications to cull piscivorous birds in accordance with the latest DEFRA policy. **Action 12a.**

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------|--|---|------------------|-------------------|------|---|
| 12a ▼ | Establish Agency approach to the issue of fish-eating birds following MAFF/DETR (now DEFRA) decision regarding government policy in the light of R&D findings. | DEFRA, Agency, Fisheries Associations, RETA | 01/07/00 | 31/03/02 | u/k | The results of the four-year R&D programme on inland fisheries in England and Wales are known. We continue to follow Government guidance. |

Issue 13: Increasing Demand for Water Resources

We have a duty to secure the proper use of water resources. In March 2001 we published a water resources strategy for the South West Region. The strategy looks 25 years ahead and considers the needs for water, both for the environment and for society, and examines the uncertainties about future water demand and its availability.

The strategy identifies demand management and water resource development options that are able to help ensure adequate supplies of water across all sectors, and shows that we can manage water resources over the next 25 years in a way that will allow an improvement to present levels of environmental protection.

Action 13a

The strategy recommends 30 actions, which will involve the assistance of many other organisations to deliver them. Where actions are to be carried out at a catchment level, we will include them in the relevant LEAP.

Significant efforts at a national, regional and local scale formed a feature of the Agency's Water Resources work to develop its approach to Catchment Abstraction Management Strategies (CAMS) in the year 2000/01. The River Exe and tributaries will be the first CAMS, in the Devon Area.

Entailing two year's work, commencing in the summer of 2001, the River Exe CAMS will examine water resource availability, the allocation of water for environmental purposes and define a sustainability status for water resource management within the system. Towards the middle of the two-year programme the Agency will consult on the emerging strategy that it intends to publish and implement. The consultation will allow consideration of all water resource issues in the catchment. We aim to facilitate and operate to a publicly shared sustainable approach to water resource management in the Exe Catchment. **Action 13b.** We have also published a national publication "Managing Water Abstraction, The Catchment Abstraction Management Strategy process", in April 2001, which can be obtained from our Exminster Office.

South West Water Limited applied in April 2001 for a licence to abstract from the River Exe, at Exebridge to transfer water to the River Taw, via the River Yeo (Molland) for a period from the summer of 2001 to 31 December 2002. The company has been forced to make the application due to unforeseen delays in essential planned infrastructure improvements in North Devon, caused by sudden contractor liquidation and the Foot and Mouth crisis.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------|---|----------------|------------------|-------------------|----------------|---|
| 13a ● | Revise the Regional Water Resources Development Strategy based on information received in the companies' water resources plans and estimates of non water company use and demand. | Agency | 01/07/00 | 31/03/02 | 50k for Region | Our water resources strategy "Water resources for the future - a strategy for the South West Region" was launched in March 2001. This action is now closed. |
| 13b ▼ | Reassess availability of the catchment water resources within CAMS. | Agency | 01/04/01 | 31/03/02 | u/k | The CAMS process has begun for the Exe Catchment. |

Issue 14: Improving Air Quality

Air pollution can damage flora, fauna and buildings and can have significant effects on soils and water. It can also pose a serious risk to public health.

All Local Authorities in the catchment, except West Devon Borough Council, have completed their air quality reviews. No Air Quality Management Areas (AQMA) have been declared, although East Devon District Council is still evaluating the need for one. **Action 14c.**

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------|--|--|------------------|-------------------|----------|---|
| 14a ● | Promote survey work to check distribution of indicator species. | EN, ENPA, Agency | 01/07/00 | 31/03/05 | u/k | Work undertaken as part of Action 14f below. Action closed. |
| 14b ■ | Encourage and co-operate in development of clear air quality standards to protect key species. | Agency, EN, JNCC, ENPA, ITE | 01/07/00 | 31/03/02 | u/k | There has been no progress on this action. |
| 14c ▼ | Continue to review air quality in the area, in line with the National Air Quality Strategy. | LAs, ENPA, Agency | 01/07/00 | 31/03/02 | u/k | The majority of LAs for this catchment have finished their air quality reviews and declared no AQMAs. |
| 14d ▼ | Conduct research to improve understanding of effects of airborne acidification and eutrophication on semi-natural habitats and species. | Universities, Agency, EN, IFE, ITE, ENPA | 01/07/00 | 31/03/05 | u/k | This action is being addressed through the work to review sites (SPAs and cSACs) protected under the Habitats Directive (see also Section 2.2). |
| 14e ● | Ensure all proposals (>10 ha) for afforestation within the areas of critical load exceedance receive an environmental impact assessment in line with The UK Forestry Standard. | Agency, Forestry Commission | 01/07/00 | 31/03/05 | <1k p.a. | Work on this action is undertaken as part of our routine activities, as a statutory consultee for the planning process. Therefore this action is now completed. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|-----|--|------------------|------------------|-------------------|------|--|
| 14f | Investigate the impact of air pollution and woodland management on lichen communities on Exmoor. | Agency, ENPA, EN | 01/07/00 | 31/03/02 | u/k | Staff changes at ENPA have delayed progress on this action, but it will be addressed during the review of the Exmoor & Quantock Oakwoods cSAC and other reviews of sites protected under the Habitats Directive (see Section 2.2). |

Issue 15: Enhancing Biodiversity

Biodiversity is the variety of wildlife and habitats. Since the signing of the Biodiversity Convention in June 1992*, Biodiversity Action Plans have been produced, to protect and enhance biodiversity, initially at a national level and subsequently at regional and local levels, with increasing levels of detail.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------|---|----------------------------|------------------|-------------------|------|---|
| 15 (i) | Support updating of wildlife inventories. | DWT, LPAs, DCC, EN, Agency | 01/07/00 | 31/03/05 | u/k | We continue to support the updating of inventories for County Wildlife Sites. |

15a Western Oakwoods

The Western oakwoods of Devon contain a diverse assemblage of species and are considered to be of international importance. These woods occur extensively within the upper reaches of the Exe Catchment. As part of our regular duties we can protect the conservation interests of oak woodlands where they border watercourses and wetlands. There is no specific action for Western oakwoods within the Exe LEAP.

15b Wet Woodland

Although the wet climate and heavy soils of Devon are suited to the development of this habitat, its current extent is unknown, but believed to be patchy. As part of national and county action plans we are working to arrest further decline, by protecting and recreating this habitat. **Action 15b(I).**

Local planning authorities are developing proposals for the creation of the Millennium Forest by creating extensive areas of new woodland to the north of Exeter. We support this initiative but no specific progress has been made on this action. **Action 15b(II).**

Target 15b: Determine extent of resource by 2003, recreate 5 hectares wet woodland by 2005.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------|--|---|------------------|-------------------|----------|--|
| 15b(i) | Promote and implement actions from the Devon BAP for Wet Woodland - assist with assessment of extent of resource, seek potential new sites and promote use as buffer strips. | EN, DWT, Agency, DEFRA, FWAG, NFU, CLA, Forestry Commission | 01/07/00 | 31/03/05 | <1k p.a. | Several conservation organisations attended a Devon wet woodland seminar held in the South Hams in November 2000. It raised an understanding of the habitat and promoted the discussion of issues. No specific progress has been made on determining the extent of the resource although we are in discussions with DWT to progress this action. |
| 15b(ii) | Seek potential sites for the Millennium Forest. | LPAs, Agency | 01/07/00 | 31/03/03 | u/k | There has been no specific progress on this action. |

15c Blanket Bog

Blanket bog is an internationally important habitat with 10-15 per cent of the global resource occurring within Britain. The communities on Exmoor, although small, are especially important in that they lie near the southern limit of the British range.

The Moorland Improvement and Restoration on Exmoor (MIRE) Project, aims to investigate water-management techniques in upland areas to restore blanket bog and associated habitats, and to influence local hydrology. So far this collaborative project has involved the blocking of ditch systems at one site on Exmoor at the head of the River Exe (Blackpitts Gate). Chestnut paling dams were installed during the winter 2000/2001. The wood was harvested from a sustainable local source within Exmoor National Park and the dams will encourage the gradual silting up and vegetation of the ditches. Further dams will be installed in conjunction with heather bales, which are used to dissipate the force of the water falling over the dam and counter any downstream erosion problems. The bales were harvested in the New Forest, however it is expected that a baler will be purchased for harvesting on Exmoor in the future. Water levels are being monitored, although manual monitoring and other site work has been suspended, due to the Foot and Mouth crisis. **Action 15c(I).**

The Exmoor BAP has now been published and identifies actions, objectives and targets for blanket bog (480 hectares of high quality blanket bog now remains within the Park). We continue our involvement with the MIRE project, which has now reached the scheme implementation phase (see above). A methodology has been devised for the blocking of drains, which will help to restore optimum hydrological conditions for the blanket bog communities. **Action 15c(II).**

Target 15c: *Restore 50 hectares of degraded habitat by 2010 (to include restoration of soil hydrology and drainage patterns).*

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------|---|-------------------------------|------------------|-------------------|---------|--|
| 15c(i) | Continue to develop MIRE Project on Exmoor, implement findings. | Agency, ENPA, EN, U of Exeter | 01/07/00 | 31/03/05 | 5k p.a. | Trial blocking of ditch systems at the head of the River Exe is ongoing. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------------|---|----------------|------------------|-------------------|-------------|--|
| 15c(ii) ▼ | Support measures from the Exmoor BAP for Blanket Bog to include: the protection and enhancement of sites through inclusion in management schemes. | ENPA, Agency | 01/07/00 | 31/03/05 | >2k p.a. | The Exmoor BAP has now been published and we continue our involvement with the MIRE project (see above Action 15c(i)). |

15d Rhôs Pasture

Rhôs pasture (often referred to as Culm Grassland) is an internationally important species-rich wet grassland.

The Culm inventory continues to be updated by the Devon Wildlife Trust, which is also involved in providing advice to landowners and bringing sites under protective management through schemes such as Countryside Stewardship. The Devon Wildlife Trust produces an informative newsletter "Culm Connections", which is available to owners and managers of Culm Grassland. **Action 15d(i).**

Target 15d: *Enter 80 per cent of total resource into protective management by 2005, restore 50 hectares of Rhôs pasture (including spring-line mire) on appropriate sites by 2005. Maintain existing marsh fritillary populations and restore one large population (1000+ adults) each to the Culm Measures and the Blackdown Hills.*

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------------|---|--|------------------|-------------------|-------------|--|
| 15d(i) ▼ | Promote and implement actions from the Devon BAP for Rhôs Pasture - includes supporting updating of 'Culm' inventory and encourage sympathetic management and/or restoration of sites and in addition discourage inappropriate creation of lakes/ponds within Rhôs pasture. | DWT, SWT, EN, LPAs, FWAG, Agency | 01/07/00 | 31/03/05 | <3k p.a. | DWT continues to update the 'Culm' inventory and provide advice to landowners on protective management. |
| 15d(ii) ▼ | Marsh Fritillary and Curlew - includes promoting sympathetic management and/or restoration of sites. | DWT, FWAG, EN, ENPA, DEFRA, Agency, SWT, DBWPS | 01/07/00 | 31/03/05 | 2k p.a. | The Devon Birdwatching & Preservation Society has published an information leaflet for Curlew, providing guidance on sympathetic land management. |
| 15d(iii) ▼ | Barn Owl - promote appropriate management of riparian feeding habits, provide nest boxes to encourage recolonisation. | Agency, BOT, Landowners, H&OT, Blackdown Hills Project | 01/07/00 | 31/03/05 | 1k p.a. | The Barn Owl Trust launched the East Devon Barn Owl scheme during November 2000. Initially this will seek to identify landowners with Barn Owls on their landholdings, with a view to developing and implementing habitat enhancements to benefit the species. |

15e Upland Heath

A significant proportion of the world's resource of this habitat occurs within Britain and the catchment contains areas of international importance on Exmoor.

Target 15e(i): *Restore all sub-optimal upland heathland on Exmoor within the catchment to a favourable condition by 2010 and recreate at least 20 hectares to former sites with a priority to link existing fragments.*

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|-------------|--|-------------------------|------------------|-------------------|------|---|
| 15e(i) ▼ | Promote and implement actions from the South-west and Exmoor BAPs for Upland Heath - encourage/facilitate heath restoration, promote understanding of the need for controlled grazing and burning. | DEFRA, ENPA, EN, Agency | 01/07/00 | 31/03/05 | <1k | Two investigations are looking at the effects of grazing on Dartmoor. These studies will provide a better understanding of heathland grazing and the lessons learnt will be applicable to heathland within the Exe Catchment. |

15f Rivers, Streams, Floodplains & Fluvial Processes

There is a wide range of river-based habitats and physical features associated with the River Exe, many of which are of national/international importance (see Table 3 within the LEAP Exe Action Plan').

The Agency has recently launched "Best Farming Practices - Profiting from a good environment". This document provides clear guidance for farmers on recognising issues and acting on opportunities. It includes a wide variety of land management related topics including 'managing bank erosion'. The dissemination strategy for this booklet is being discussed at our Head Office (see Action 1d). We also continue to provide guidance through our routine work and as a statutory consultee in the planning process. **Action 15f(i).**

The palaeochannels project has been completed with the production of the PhD thesis. This highlights the importance of archaeologically relevant palaeoenvironmental data and provides an account of vegetation development and management within the Exe basin. The work received funding from ENPA and us amongst others. We will use this information to inform our decisions and improve the advice we give. **Action 15f (iii).**

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|-------------|--|--|------------------|-------------------|------|--|
| 15f(i) ▼ | Promote and implement actions from the Devon and/or Exmoor BAPs for Rivers, Streams - provide guidance on best practice for riverbank management, promote the creation of riparian buffer strips through advice and provision of fencing, establish criteria for designation of rivers and streams as County Wildlife Sites and examine potential for creating demonstration sites for best working practice techniques. | Agency, DWT, WRT, FWAG, EN, RFOs, RETA, ENPA | 01/07/00 | 31/03/05 | u/k | The booklet for Best Farming Practices has been completed and dissemination strategy is being discussed. We continue to act as a statutory consultee in the planning process and provide guidance on such matters. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------------|---|---------------------------------|------------------|-------------------|----------|---|
| 15f(ii) ▼ | River Barle SSSI - increase environmental monitoring within the River Barle SSSI, in line with requirements identified within the Conservation Strategy. | Agency, EN, ENPA | 01/07/00 | 31/03/05 | <1k p.a. | We have worked closely with ENPA and EN to ensure that the proposed restoration of a hydroelectric scheme on the River Barle does not compromise nature conservation interests. Environmental monitoring data was collected to ensure this objective is achieved. |
| 15f(iii) ▼ | Promote and implement actions from the Devon BAP for Fluvial Processes - promote measures to conserve, enhance or interpret earth science features linked to the water environment. In addition continue to support palaeochannels project. | Agency, EN, U of Exeter | 01/07/00 | 31/03/05 | 3k | The palaeochannels project has been completed. We will seek further opportunities to develop this action. |
| 15f(iv) ▼ | Earth Science Features - support the identification/documentation of sites, promote understanding of the importance of geomorphology in natural river processes, and encourage measures to conserve, enhance or interpret earth science features linked to the water environment. Support identification, documentation and protection of County Geological Sites (RIGS). | Agency, RIGS Groups, LPAs, ENPA | 01/07/00 | 31/03/05 | 1k p.a. | The educational RIGS register is now available on the Devon County Council intranet site for all schools and CD versions will soon be made available. We continue to support the documentation and protection of county geological sites. |

Target 15f(v): Restore 10 hectares of floodplain by 2005. (See also Issue 15b target).

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|-------------|---|------------------------|------------------|-------------------|------|--|
| 15f(v) ▼ | Promote and implement actions from the Devon BAP for Floodplains - develop proposals for priority restoration sites and implement to include floodplain woodland. Ensure no net loss of floodplain. | Agency, RSPB, FA, LPAs | 01/07/00 | 31/03/05 | 3k | We continue to seek opportunities for restoration of floodplain. |

Target 15f(vi): Implement habitat enhancements at five strategic sites within the catchment by 2005. Restore breeding otters to pre 1960 levels.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------------|---|--|------------------|-------------------|------|--|
| 15f(vi) ▼ | Promote and implement actions for Devon BAP for Otter - promote habitat creation/restoration. In addition continue post-mortem programme and identify road casualty blackspots by 2000. | Agency, DWT, EN, DCC, LPAs, RFOs, RETA | 01/07/00 | 31/03/05 | 3k | We continue to seek opportunities for habitat enhancement for this species as part of our routine duties. Following collaboration between us and the Wildlife Trust partnership, advice can now be readily obtained on how to avoid potential conflicts between otters and fisheries. The contract for post mortems finished at the beginning of 2001. We are retaining corpses from road kills in a frozen state to await the commencement of a new contract. |

Target 15f(vii): Identify current distribution by 2001, restore 2 km of suitable habitat by 2005, if appropriate.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------------|--|----------------------------------|------------------|-------------------|------|--|
| 15f(vii) ▼ | Promote and implement actions for the Devon BAP for Water Vole - support survey to identify core populations, provide management advice, identify sites for habitat restoration and population re-establishment. | LPAs, Wild Cru, DWT, Agency, DCC | 01/07/00 | 31/03/05 | 2k | During 2000 we investigated a number of Water Vole sightings, predominantly within the east of the catchment. Unfortunately, all proved negative. The Rivers & Wetlands Officer at DWT is developing a survey for the summer of 2001, however restrictions imposed by the Foot & Mouth crisis may postpone the survey. |

Target 15f(viii): Determine current status of freshwater crayfish within the catchment by 2002. Maintain existing populations on Creedy/Yeo system.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------------|---|----------------|------------------|-------------------|------|---|
| 15f(viii) ▼ | Promote and implement actions from the Devon BAP for Freshwater White-clawed Crayfish - survey, collate records, initiate appropriate habitat management. | Agency | 01/07/00 | 31/03/05 | 2k | We surveyed the Creedy/Yeo sub-catchment at the beginning of 2000 and found individuals at three locations. We will continue to monitor the situation and make provision for this species when we are involved with river-based activities in this sub-catchment. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------------|---|-------------------------------------|------------------|-------------------|------|---|
| 15f(ix) ▼ | Promote and implement actions from the Devon BAP for Atlantic Salmon - develop policy, safeguard sites, manage and protect species, provide advice, research and development. | Agency, DEFRA, NFU, ROs, RFOs, RETA | 01/07/00 | 31/03/05 | u/k | Production of the Salmon Action Plan for the Exe has been postponed until 2002/2003. The review of Habitats Directive sites will also address many of these actions, although not specifically within this catchment. |

Target 15f(x):

Determine status of each Lamprey species within the catchment by 2003.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|----------------|--|------------------|------------------|-------------------|---------|--|
| 15f(x) ▼ | Rivers, Streams, Floodplains & Fluvial Processes - River/Brook/Sea Lamprey - improve distribution records, assess status within catchment. | Agency | 01/07/00 | 31/03/05 | 2k p.a. | The Foot & Mouth crisis may delay the fisheries survey work this year, however once survey work proceeds we will be gathering information on the distribution of lamprey species. |
| 15f (xi) ▼ | Promote and implement actions from the National BAP for Allis/Twaite Shad - increase public awareness of the shad, encourage recording for estuary and lower river. | Agency, DSF | 01/07/00 | 31/03/05 | <1k | We have circulated our information leaflet on this species, and we are requesting catch or sighting information. |
| 15f(xii) ▼ | Invertebrates of Exposed Riverine Sediments (ERS) - implement recommendations of ERS invertebrate Research & Development. | Agency, EN | 01/07/00 | 31/03/02 | 2k p.a. | A systematic survey of ERS invertebrates, supported and funded by EA, EN and WBB was undertaken at 10 sample reaches of rivers in the South West (included Creedy/Yeo and Exe). Reaches with the highest number of species of conservation interest were recorded on both the Creed/Yeo and Exe. One species previously unrecorded in national surveys was discovered at the Exe site. |
| 15f(xiii) ■ | Promote and implement actions from the National BAP for River Jelly Lichen - continue to determine status on the River Barle and River Exe; if appropriate develop actions and targets for protection. | Agency, ENPA, EN | 01/07/00 | 31/03/05 | 1k | There has been no further work since the survey in August 1999 and the information provided by the County Lichen Recorder. We hope to initiate further survey work in collaboration with EN to improve our knowledge of the distribution of this species. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------------|--|--|------------------|-------------------|---------|---|
| 15f(xiv) ▼ | Invasive Plants - continue to monitor, encourage/facilitate control, raise public awareness of the issue, and continue to support control on River Barle SSSI and Exminster Marshes. | Agency, LPAs, ROs, RFOs, RETA | 01/07/00 | 31/03/05 | 5k p.a. | We continue to control Japanese Knotweed in collaboration with EN on the River Barle. We are planning a county wide collection programme of records for Japanese Knotweed with DCC and DWT to develop a control strategy. A new advice leaflet for householders is in production. We are also undertaking control of floating marsh pennywort on Exminster Marshes and are developing our control methods against this particularly persistent alien species. |
| 15f(xv) ▼ | Alder root disease (phytophthora) - continue to raise public awareness, encourage reporting of diseased trees and provide management guidance and investigate methods to minimise the impact of the disease. | Agency, RFOs, RETA | 01/07/00 | 31/03/05 | 1k | We continue to raise awareness and provide advice on the control of the disease. We are investigating techniques to minimise the impact of the disease and have identified sites within the Axe Catchment to trial our proposals. |
| 15f(xvi) ▼ | Promote bankside fencing schemes to encourage the establishment of buffer zones along watercourses and the development of trees, where appropriate. | Agency, Landowners, Fishing Associations | 01/07/00 | 31/03/05 | u/k | The booklet on Best Farming Practices has been completed (see Action 1d and 15f(i)). We also provide guidance through our routine activities. |

15g Standing Open Water Including Ponds

This habitat ranges in extent from Wimbleball Reservoir in the north-east of the catchment to small ponds within the farmed landscape particularly around the Rivers Culm and Clyst.

Target 15g(i) Maintain and increase extent of existing resource. Establish current status of great crested newt, to develop appropriate conservation targets.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|-------------|---|-----------------------------|------------------|-------------------|------|---|
| 15g(i) ▼ | Promote and implement actions from the South-west BAP for Standing Open Water - ensure favourable management, encourage appropriate creation of new sites, and raise in addition public awareness of invasive plants. | DWT, Agency, FWAG, LPAs, EN | 01/07/00 | 31/03/05 | 2k | We undertake this work as part of our routine activities. |

15h Canals

Two canals lie within the catchment, namely the Exeter Ship Canal, which lies partly within the Exe Estuary SPA (Ramsar and SSSI) and the Grand Western Canal at Tiverton. Please refer to Issue 4 for the actions relating to canals.

15i Lowland Heath

Lowland heath is a habitat of international importance and the UK contains approximately 20 per cent of the total area occurring in Europe. Within the Exe Catchment, three significant areas of lowland heath are found. These are on the Exmoor fringes, the East Devon Pebblebed Heaths (western fringes) and around the Haldon ridge.

Target 15i: *Maintain all existing high quality lowland heath favourable condition, initiate restoration of all sub-optimal heath to favourable condition by 2010, recreate 30 hectares heathland on sites where it formerly occurred with priority to link existing habitat by 2010.*

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------------|---|-----------------------------|------------------|-------------------|------|---|
| 15i (i) ■ | Promote and implement actions from the Devon, Exmoor and East Devon Heathlands BAPs for Lowland Heath - support and contribute towards implementing heathland restoration initiatives within the catchment. | Agency, EN, ENPA | 01/07/00 | 31/03/02 | 2k | There has been no progress of this action over the past year. |
| 15i (ii) ▼ | East Devon Pebblebed Heaths - investigate impact of abstractions on the integrity of the site, devise and implement any appropriate actions required. | Agency, EN, Licence Holders | 01/07/00 | 31/03/02 | u/k | A meeting was held to discuss the impact of SWW Ltd and private abstractions on 2 May 2001. Investigations are ongoing. |

15j Lowland Farmland

The greatest proportion of the Exe Catchment comprises farmland. Whilst agricultural improvement has seen development of increasingly larger fields, the existing matrix of hedgerows trees and small copses provides an important wildlife resource. There are no specific actions with the Exe LEAP for this habitat.

15k Grazing Marsh

The lower floodplain of the Exe borders the estuary and contains Exminster Marshes. Situated between the railway and the Exe Estuary, these grazing marshes lie wholly within the Exe Estuary Spa (SSSI & Ramsar). In addition to having a rich ditch flora and associated dragonfly fauna, the marshes are internationally important to wildfowl and waders providing roosting, feeding and breeding areas.

Target 15k: *Maintain quality of grazing marsh and restore 50 hectares or more on appropriate sites. Increase area of wetland margin habitat under sympathetic management by 25 per cent by 2005.*

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|---------------|---|--|------------------|-------------------|--------|--|
| 15k(i) ▼ | Promote and implement actions from the Devon BAP for Grazing Marsh - contribute to management of marshes and adjacent habitats to maintain range and numbers of Cetti's warblers. | Agency, Landowners, EN, RSPB, EDDC, NFU, DWT, ECC, DEFRA, DCC. | 01/07/00 | 31/03/05 | 2k | A survey of the ditches within Exminster Marshes by EN has indicated a decline in conservation value. The Clyst Valley project continues to seek opportunities to bring land into protective management. |
| 15k(ii) ● | RSPB Lagoon Project - contribute to management of the operation of this project and monitor effects. | Agency, RSPB | 01/07/00 | 31/03/05 | <1k | The project has been completed and the wet weather of last year (2000) has ensured that the lagoon has been sustained. |
| 15k(iii) ■ | Creation of wetland habitat within Agency-owned sites on Exminster. | Agency, EN | 01/07/00 | 31/03/03 | u/k | There has been no progress on this action over the last year with the sites at Countess Wear and Turf. |
| 15k(iv) ▼ | Continue to develop an agreed Water Level Management Plan for Exminster Marshes and achieve objectives through implementation of actions. | Agency, Landowners, EN, RSPB | 01/07/00 | 31/03/05 | t.b.c. | The Water Level Management Plan Steering Group has been set up and improvised structures are to be put in place. |

15I Reedbed

Although typically species-poor, reedbeds are an important habitat supporting a distinctive complement of many rare breeding bird species and often large populations of amphibians.

Target 15I: Create 2 hectares or more of additional reedbed by 2005.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|-------------|---|--------------------------------------|------------------|-------------------|------|---|
| 15I(i) ▼ | Promote and implement actions from the Devon BAP for Reedbed - encourage appropriate management of existing reedbeds to ensure no loss of existing reedbed >0.5ha, identify areas for reedbed creation and implement, promote and advise on the use of reedbeds for wildlife and pollutant/sewage effluent treatment. | Agency, LPAs, SWW Ltd, RSPB, DWT, EN | 01/07/00 | 31/03/05 | 2k | We are working with DWT on a project to take water from the Exeter Canal to the Old Sludge Beds Nature Reserve on the Exe Estuary. Since repairs to the canal banks undertaken in 1996, a lack of sufficient waters has been identified within the reserve. We continue, as part of our routine duties, to promote the use of reedbeds for the treatment of effluent. |

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------------|--|----------------|------------------|-------------------|------|---|
| 15l(ii) ▼ | Continue to develop management plans for Agency landholdings to maximise conservation value of reedbeds. Complete by 2001. | Agency, EN | 01/07/00 | 31/03/02 | 2k | Actions for the enhancement of the Countess Wear reedbed are being devised and include the creation of scrapes. |

15m Estuary and Associated Habitats

The Exe Estuary is internationally important for wintering wildfowl and waders including dark-bellied brent-geese, wigeon, ringed plover and black-tailed godwit and also a noteworthy winter population of over 500 avocets.

Target 15m: Maintain and increase quality and extent of estuarine habitats (to include creation of 2 hectares of saltmarsh via managed retreat).

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------------|---|------------------------------------|------------------|-------------------|------|--|
| 15m(i) ▼ | Promote and implement actions from the Devon BAP for Estuaries - investigate opportunities for the creation/restoration of saltmarsh (and other estuarine habitats) through managed retreat. | Agency, Landowners, EEMP, EN, RSPB | 01/07/00 | 31/03/05 | 2k | The Clyst Valley project continues to seek opportunities to bring land into protective management (see Action 15k(i)). |
| 15m(ii) ■ | Promote and implement actions from the Devon BAP for Estuaries - contribute to the development and implementation of the Exe Estuary Management Plan, and support the development of conservation objectives for the Exe Estuary SPA. | Agency, EN, DWT, RSPB, LPAs, EEMP | 01/07/00 | 31/03/05 | <1k | Progress has been slow this year as the Exe Estuary Co-ordinator's post was vacant for about six months. The post was filled in March 2001 and we hope to progress this action in 2001/2002. |

15n Sand Dunes

Dawlish Warren represents a substantial sand dune system, which protects the mouth of the Exe Estuary. It supports several nationally rare plant species and is the only UK mainland location for the sand crocus. In addition to the international protection afforded to the Exe Estuary, the Warren is also designated an cSAC, SSSI and Local Nature Reserve (LNR).

In the past concern has been expressed about falling groundwater levels in the Warren which may affect the conservation value of the meadow. A pumping system to take excess water from the golf course into the meadow to maintain groundwater levels in the reserve was developed by The Dawlish Warren Hydrology Project. A wind turbine is used to power a pump to transfer the water.

Target 15n: Restore water tables at Dawlish Warren to favourable conservation status level by 2010.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|--------------|--|---|------------------|-------------------|----------|---|
| 15n(i) ● | Promote and implement actions from the South-west BAP for Sand Dunes - in addition assist with the implementation and development of the Dawlish Warren LNR management plan. | TDC, Agency, EN, DCC, Plymouth University | 01/07/00 | 31/03/02 | 12.5k | The LNR management plan has been produced. Therefore this action is now completed. |
| 15n(ii) ▼ | Monitor the Dawlish Warren Hydrology Project. | TDC, Golf Club, Agency, EN, DWT | 01/07/00 | 31/03/05 | <1k p.a. | The wind turbine is working well in generating electricity for the system. However, there are problems with the water metering system and we are providing advice to help solve this. |

15o Sea Cliffs and Slope

Sea cliffs and slope are of particular significance in the South West due to the high proportion of coastline to land. There are no specific actions in this LEAP for this issue, but we will continue to ensure that our works do not compromise the biodiversity and earth science interest of cliffs.

15p Coastal Reefs

A series of rocky reefs are situated within Lyme Bay, of these, one (the 'Exeters') occurs (partially) within the Exe Catchment. Concern has been raised that fishing activity, particularly scallop dredging, is resulting in damage to these reefs within the Bay. We continue to support investigations into the status of the reefs and assist, where possible, to devise and implement achievable solutions to the problem.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|-------------|--|--|------------------|-------------------|------|--|
| 15p(i) ▼ | Encourage the management of scallop dredgers and beam trawlers in a manner that minimises potential damage to marine life. | DEFRA, EN, DSFC, DWT, PESCA, SWFPA, Agency | 01/07/00 | 31/03/05 | 1k | The Lyme Bay Reefs Report on the area's fisheries was produced by the DWT in September 2000. This document will complement their forthcoming study into the effects of scallop dredging on local habitats due to be completed later in 2001. |

Issue 16: Lack of Information on River Habitat

To make more informed management decisions in the catchment, we need to improve our knowledge of river habitat. River Habitat Survey (RHS) is a system for assessing the physical character and quality of rivers. The RHS system is based upon a database of information gathered from over 5,600 reference sites between 1994 and 1997. By recording data using a standard methodology, an assessment of habitat quality and the extent of artificial channel modification can be made. Collecting this information on rivers is relevant not only to us, but also to a wide range of other organisations and individuals.

| No: | Action | Lead/ Other | Planned Start | Planned Finish | Cost | Progress |
|------------|---|------------------------|--------------------------|---------------------------|-------------|---|
| 16a ■ | Ensure that any River Habitat Survey data collected within the catchment is added to existing database. | Agency | 01/07/00 | 31/03/05 | <1k p.a. | There has been no progress on this action due to financial constraints. |

The Environment Agency has a wide range of interests in the areas of water management, waste management and pollution prevention and control. Whilst many of these interests are supported by statutory duties and powers, much of the Agency's work is advisory, with the relevant powers resting with other bodies such as local planning authorities. The following table summarises the Agency's duties, powers and interests and their relationship to land-use planning.

| Agency Duty | The Agency has powers to: | The Agency has an interest (but no powers) in: | Partnership |
|---|---|---|--|
| Water Resources The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources. | <ul style="list-style-type: none"> • Grant or vary water abstraction and impoundment licences on application with appropriate conditions imposed to safeguard the needs of the environment whilst allowing reasonable and justified use of available and sustainable water resources – with the aim of achieving an equitable balance between competing demands. • Revoke or vary existing licences to reinstate flows or levels to surface waters or groundwater which have become depleted as a result of abstraction. Compensation may be payable if such powers are used. • Secure the proper use of water resources through its role in water resources planning, and the assessment of reasonable need for abstractions and the promotion of more efficient use of water resources. • Monitor and enforce abstraction and impoundment licences. • Issue conservation notices to direct appropriate practices with regard to water resources issues associated with exempt dewatering activities. | <ul style="list-style-type: none"> • The more efficient use of water by water companies, developers, industry, agriculture and the public and the introduction of water-efficiency measures and suitable design and layout of the infrastructure. | <ul style="list-style-type: none"> • The Agency uses its position as a statutory consultee to the planning authorities to secure conditions and agreements that protect the water environment and that encourage water conservation measures. • The Agency also seeks to influence planning decisions for new development by ensuring that planning authorities allow for any lead time required for resource development. • The Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water. • The Agency acknowledges that new resources may be needed in the future and supports a twin-track approach of planning for water resource development alongside the promotion of demand-management measures. |
| Flood Defence The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment. | <ul style="list-style-type: none"> • Control, through Land Drainage consents, of development within 8 m of main river (Water Resources Act 1991, Section 109) or construction of a structure that would affect the flow of an ordinary watercourse (Land Drainage Act, 1991 Section 23). • Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991. • Undertake works to main rivers using permissive powers. • Issue flood warnings relating to main river to the public, local authorities and the police. • Consent mineral working within 16 m of main rivers. | <ul style="list-style-type: none"> • Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by local planning authorities. • Installation of surface water source control measures e.g. flood attenuation structures. • Supervising the maintenance of ordinary watercourses which is a local authority remit, but may impact on main rivers. • Installation of buffer zones which reduce flood risk and have significant environmental benefits. • Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance. | <ul style="list-style-type: none"> • As a statutory consultee on planning applications within main river floodplains the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts of proposed floodplain development. • The Agency will encourage best practice, including source control measures and common standards, among local authorities and riparian owners to protect and enhance the environment. • The Agency works with the civil authorities to prepare flood warning dissemination plans and supports their endeavours to protect communities at risk. |

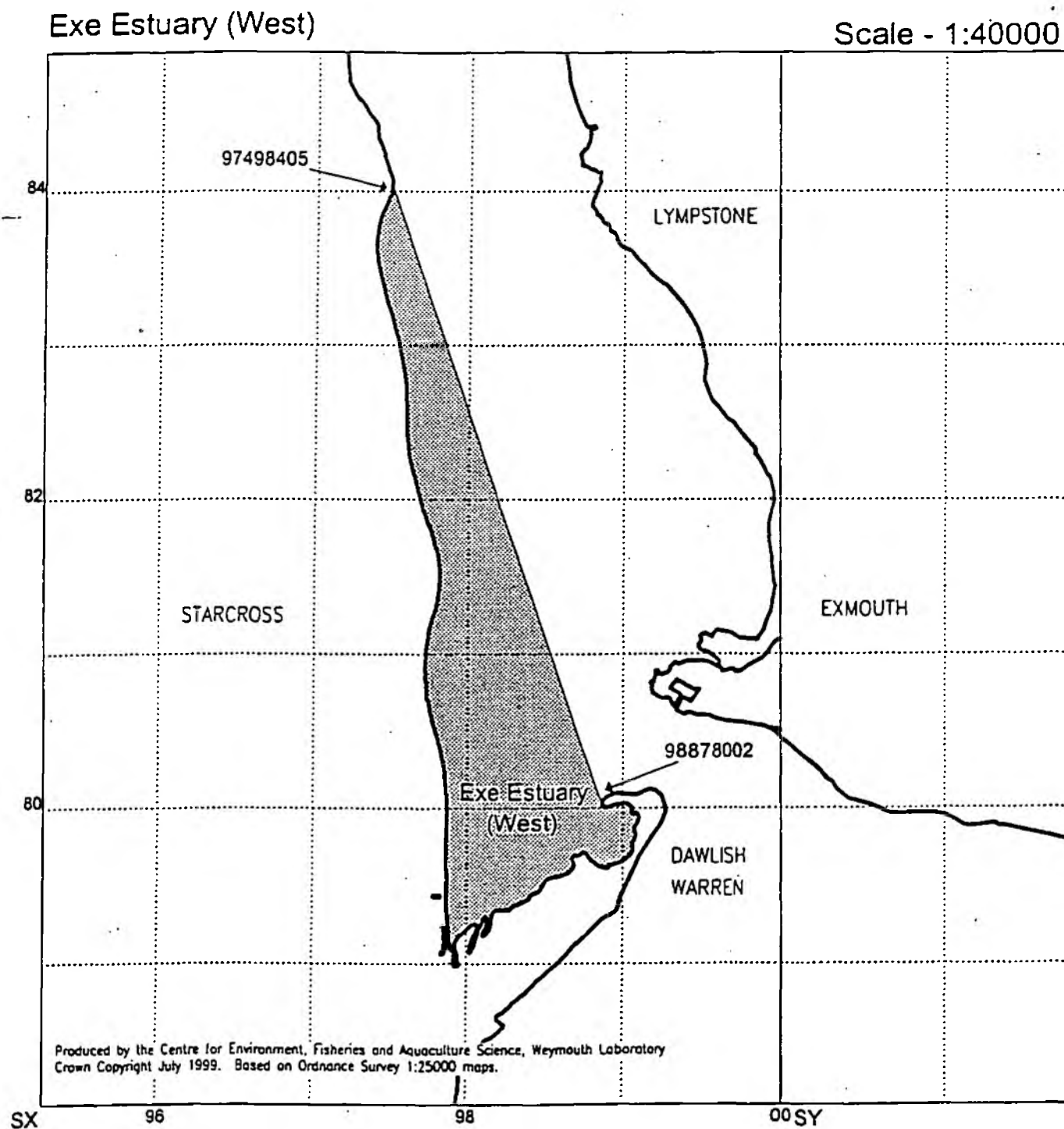
| Agency Duty | The Agency has powers to: | The Agency has an interest (but no powers) in: | Partnership |
|---|--|---|--|
| <p>Water Quality</p> <p>The Agency has a duty to monitor, protect, manage and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.</p> | <ul style="list-style-type: none"> • Issue discharge consents to control pollution loads in controlled waters. • Regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharge consents. • Issue 'works notices' and enforcement notices where action is required to reduce the risk of pollution. • Prosecute polluters and recover the costs associated with incidents. • Serve prohibition notices (with or without conditions) on highway authorities to require treatment and pollution measures for highway runoff. | <ul style="list-style-type: none"> • The greater use of source control measures to reduce pollution by surface water runoff. • Prevention and education campaigns to reduce pollution incidents. • The provision of highway runoff control measures, which is a highway authority remit. | <ul style="list-style-type: none"> • The Agency will liaise with local authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source control measures. As a statutory consultee on planning applications, the Agency will advise local planning authorities on the water quality impact of proposed developments. |
| <p>Air Quality</p> <p>The Agency has a duty to implement Part 1 of the Environmental Protection Act 1990.</p> | <ul style="list-style-type: none"> • Regulate the largest technically complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO. • Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes. | <ul style="list-style-type: none"> • The vast number of smaller industrial processes which are controlled by local authorities. • Control over vehicular emissions and transport planning. | <ul style="list-style-type: none"> • The Agency provides data on IPC processes and advice on planning applications to local authorities. The Agency is willing to offer its technical experience to local authorities on the control of air pollution. The Agency wishes to liaise with local authorities in the production of their Air Quality Management Plans. The Agency will advise and contribute to the government's National Air Quality Strategy. |
| <p>Radioactive Substances</p> <p>The Agency has a duty under the Radioactive Substances Act 1993 to regulate the use of radioactive materials and the disposal of radioactive waste.</p> | <ul style="list-style-type: none"> • To issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public. | <ul style="list-style-type: none"> • The health effects of radiation. | <ul style="list-style-type: none"> • The Agency will work with users of the radioactive materials to ensure that radioactive wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with MAFF to ensure that the disposal of radioactive waste creates no unacceptable effects on the food chain. • The Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites. The Agency will work with the HSE on worker protection issues at non-nuclear sites. |

| Agency Duty | The Agency has powers to: | The Agency has an interest (but no powers) in : | Partnership |
|---|---|---|--|
| <p>Waste Management</p> <p>The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities.</p> | <ul style="list-style-type: none"> • Vary waste management licence conditions. • Suspend and revoke licences. • Investigate and prosecute illegal waste management operations. | <ul style="list-style-type: none"> • The siting and granting of planning permission for waste management facilities. This is conducted by the waste industry and local planning authorities. The Agency, as a statutory consultee on planning applications, can advise on such matters. | <ul style="list-style-type: none"> • The Agency will work with waste producers, the waste management industry and local authorities to reduce the amount of waste produced, increase re-use and recycling and improve standards of disposal. |
| <p>Contaminated Land</p> <p>The Agency has a duty to develop an integrated approach to the prevention and control of land contamination, ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.</p> | <ul style="list-style-type: none"> • Regulate the remediation of contaminated land designated as special sites. • Prevent future land contamination by means of its IPC, Water Quality and other statutory powers. • Report on the state of contaminated land. | <ul style="list-style-type: none"> • Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land. | <ul style="list-style-type: none"> • The Agency supports land remediation and will promote this with developers and local authorities and other stakeholders. |
| <p>Conservation</p> <p>The Agency will further conservation, wherever possible, when carrying out water management functions; have regard to conservation when carrying out pollution control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.</p> | <ul style="list-style-type: none"> • The Agency has no direct conservation powers but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation. | <ul style="list-style-type: none"> • The conservation impacts of new development. These are controlled by local planning authorities. • Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to local authorities and developers to protect the integrity of such sites or species. • Implementation of the UK Biodiversity Plan for which we have taken responsibility as lead organisation for 34 species and 5 habitats of wetland character. | <ul style="list-style-type: none"> • The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation. The Agency will work with developers, local authorities, conservation bodies and landowners to conserve and enhance biodiversity. |
| <p>Landscape</p> <p>The Agency will further landscape conservation and enhancement when carrying out water management functions; have regard to the landscape when carrying out pollution control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.</p> | <ul style="list-style-type: none"> • The Agency must further the conservation and enhancement of natural beauty when exercising its water management powers and have regard to the landscape in exercising its pollution control powers. | <ul style="list-style-type: none"> • The landscape impact of new development, particularly within river corridors. This is controlled by local planning authorities. | <ul style="list-style-type: none"> • The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with local authorities and developers to conserve and enhance diverse river landscapes. |

| Agency Duty | The Agency has powers to: | The Agency has an interest (but no powers) in : | Partnership. |
|---|--|---|---|
| <p>Archaeology</p> <p>The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.</p> | <ul style="list-style-type: none"> • The Agency must promote its archaeological objectives through the exercise of its water management and pollution control powers and duties. | <ul style="list-style-type: none"> • Direct protection or management of sites of archaeological or heritage interest. This is carried out by local planning authorities, County Archaeologists and English Heritage. | <ul style="list-style-type: none"> • The Agency will liaise with those organisations which have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests. |
| <p>Fisheries</p> <p>The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.</p> | <ul style="list-style-type: none"> • Regulate fisheries by a system of licensing. • Make and enforce fisheries byelaws to prevent illegal fishing. • Promote the free passage of fish and consent fish passes. • Monitor fisheries and enforce measures to prevent fish entrapment in abstractions. • Promote its fisheries duty by means of land drainage consents, water abstraction applications and discharge applications. | <ul style="list-style-type: none"> • The determination of planning applications which could affect fisheries. | <ul style="list-style-type: none"> • Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries. |
| <p>Recreation</p> <p>The Agency has a duty to promote rivers and water space for recreational use.</p> | <ul style="list-style-type: none"> • The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management. | <ul style="list-style-type: none"> • Promotion of water sports. The Sports Council and other sport bodies carry this out. | <ul style="list-style-type: none"> • The Agency will work with the Countryside Commission, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment. |

APPENDIX ONE

The Surface Waters (Shellfish) (Classification) Regulations 1997.



GLOSSARY

Above Ordnance Datum (AOD) - land levels are measured relative to the average sea level at Newlyn in Cornwall. This average level is referred to as 'Ordnance Datum'. Contours on Ordnance Survey maps of the UK show heights in metres above Ordnance Datum.

abstraction - removal of water from surface or groundwater.

acidification - the detrimental effect of acid rain on soils and freshwater.

algae - a diverse group of simple aquatic plants, some microscopic, which may grow in rivers and the sea in great profusion (blooms).

alien - plant or animal not native to the country concerned.

ammonia - a chemical found in water often as the result of discharge of sewage effluents. High levels of ammonia affect fisheries and abstractions for potable water supply.

Area of Outstanding Natural Beauty (AONB) - designated by the Countryside Commission under the National Parks and Access to the Countryside Act 1942, to conserve and enhance the natural beauty of the landscape, mainly through planning controls.

biodiversity - variety of wildlife and habitats.

buffer zone - strip of land, 10-100 m wide, alongside rivers which is removed from intensive agricultural use.

catchment - the total area from which a single river and its tributaries collect surface runoff.

coarse fish - cyprinid fish and other commonly associated species such as pike, perch and eels of angling significance. The term does not normally refer to minor species such as bullhead, stone loach, minnow and stickleback.

confluence - the point at which two rivers meet.

controlled waste - defined by the Control of Pollution Act 1974, Part 1 section 30. It includes household, industrial and commercial waste.

controlled waters - defined by the Water Resources Act 1991 Part III section 104. They include groundwaters and inland waters, estuaries and coastal waters to three nautical miles from the shore.

critical load - the annual quantity of acidity, in hydrogen ion equivalents per hectare per year, which can be neutralized by soil or freshwater's natural buffering capacity.

Culm grassland - this is a local name for the Rhôs pastures found on the Culm Measures. These are characterised by species-rich pastures, typical of poorly drained acid soils, supporting a suite of purple moor-grass and rush communities. They typically form a mosaic of vegetation communities together with heathland, other species-rich grasslands and wet woodland (see also Rhôs pasture).

dangerous substances - substances defined by the European Commission as in need of special control because of their toxicity, bioaccumulation and persistence. The substances are classified as List I or II according to the Dangerous Substances Directive.

demand management - activities to manage the amount of water required from a source of supply; includes measures to control waste and/or discourage use.

determinand - a general name for a characteristic aspect of water quality. Usually a feature which can be described numerically as a result of scientific measurement, e.g. pH, BOD, DO, etc.

diffuse pollution - pollution without a single point source, e.g. acid rain, pesticides, urban runoff, etc.

ecosystem - a functioning, interacting system composed of one or more living organisms and their effective environment, in a biological, chemical and physical sense.

Environmental Quality Standard (EQS) - the concentration of a substance found in the environment which should not be exceeded in order to protect the environment or human health. An EQS is set by the EC through EC Directives and also by the government.

eutrophication - the enrichment of water by nutrients, such as compounds of nitrogen or phosphorus. It causes an accelerated growth of algae and higher forms of plant life.

floodplain - parts of river valleys or coastal plains which are inundated during floods.

groundwater - water contained in the void spaces in pervious rocks and also within the soil.

habitat - natural home of plant or animal.

hydrology - the study of the interaction between rainfall, river flow and groundwater.

Integrated Pollution Control (IPC) - an approach to pollution control in the UK which takes account of potential effects upon all environmental media. Applies to prescribed processes and uses the principles of BATNEEC and BPEO.

Invertebrates - animals without a backbone, e.g. insects, worms and spiders.

landfill site - site used for waste disposal into/onto land.

leachate - solution formed when water percolates through a permeable medium.

lichen - a group of lower plants consisting of a fungus which enfolds an alga, the two living together to their mutual benefit.

Local Nature Reserve (LNR) - nature reserves established, and usually managed, by District/Borough Councils. Local authorities are empowered to designate such sites under the National Parks and Access to the Countryside Act 1949.

Main River - designated under the Water Resources Act 1991 by the Ministry of Agriculture, Fisheries and Food. Formal consent is required for all activities that interfere with the bed or banks of the river or obstruct the flow.

margin - a term used to describe the junction of the water and the bank.

mire - area of peatland; includes bog (acid) and fen (alkaline).

outfall - the point where a river or pipe discharges.

permissive powers - powers which confer the right to do things but not the duty.

pH - a measure of the concentration of hydrogen ions in solution. Water with a pH less than 7 is acid and water with a pH of more than 7 is alkaline.

Ramsar Convention - a convention on wetlands of international importance, especially as waterfowl habitat, held at Ramsar in Iran in 1974. Designated sites are considered in a similar fashion to SPAs and SACs.

reach - a length of channel.

restoration - the return to a pristine state.

Rhôs pasture - Rhôs is a Welsh word which means 'a wet, often heathy grazing pasture'. Nationally the word Rhôs has come to be used to describe this type of unimproved pasture, a characteristic mix of wet heath, rush pasture, fen meadow, mire and scrub. On the Culm Measure of north-west Devon and north-east Cornwall the habitat is known as Culm Grassland.

riparian - relating to or situated on the bank of a river or stream.

riparian owner - owner of land next to river; normally owns river bed and rights to mid-line of channel.

River Quality Objective (RQO) - the level of water quality that a river should achieve in order to be suitable for its agreed uses.

runoff - water leaving a river catchment. Normally regarded as rainfall minus evapotranspiration (evaporation and loss of water by plants) but commonly used to mean rainwater flowing across the land (also known as overland flow).

sewage - liquid waste from cities, towns and villages which is normally collected and conveyed in sewers for treatment and/or discharge to the environment.

sewerage - a system of underground pipes designed to carry sewage to Sewage Treatment Works.

Site of Special Scientific Interest (SSSI) - sites of national importance designated under the Wildlife and Countryside Act 1981 by English Nature in England. Sites may be designated to protect wildlife, geology or land forms.

sludge - the accumulation of solids from treatment processes.

Special Area of Conservation (SAC) - areas designated under the EC Habitats Directive.

spring-line mire (Rhôs pasture) - wet boggy areas concentrated along spring lines occurring mostly on Exmoor and within the Blackdown Hills.

surface water - general term used to describe all the water features such as rivers, streams, springs, ponds and lakes.

sustainable development - development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

wetlands - areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt.

ABBREVIATIONS AND UNITS

| | |
|---------|--|
| ADAS | ADAS Consulting Limited |
| Agency | Environment Agency |
| AMP | Asset Management Plan |
| AOD | Above Ordnance Datum |
| AONB | Area of Outstanding Natural Beauty |
| BATNEEC | Best Available Technology Not Entailing Excessive Cost |
| BAP | Biodiversity Action Plan |
| BCU | British Canoe Union |
| BPEO | Best Practicable Environmental Option |
| BOD | Biochemical Oxygen Demand |
| BOT | Barn Owl Trust |
| CAMS | Catchment Abstraction Management Strategies |
| CEFAS | Centre for Environment Fisheries and Aquaculture Science |
| CLA | Country Landowners and Businesses Association |
| DCC | Devon County Council |
| DEFRA | Department for Environment, Food and Rural Affairs |
| DETR | Department of the Environment, Transport and the Regions |
| DO | Dissolved Oxygen |
| DSFC | Devon Sea Fisheries Committee |
| DWT | Devon Wildlife Trust |
| EC | European Council |
| ECC | Exeter City Council |
| EEMP | Exe Estuary Management Partnership |
| EH | English Heritage |
| EN | English Nature |
| ENPA | Exmoor National Park Authority |
| ENTRUST | Environmental Trust Scheme Regulatory Body Ltd – responsible for promoting and regulating the landfill tax credit scheme |
| EQS | Environmental Quality Standard |
| FA | Fishing Associations |
| FWAG | Farming and Wildlife Advisory Group |
| H&OT | Hawk and Owl Trust |
| IFE | Institute of Freshwater Ecology |
| IGER | Institute of Grassland and Environmental Research |
| IPC | Integrated Pollution Control |
| ITE | Institute of Terrestrial Ecology |
| JNCC | Joint Nature Conservation Committee |
| LA | Local Authority |
| LEAP | Local Environment Agency Plan |
| LPA | Local Planning Authority |
| MAFF | Ministry of Agriculture, Fisheries and Food |
| MDDC | Mid Devon District Council |
| NFU | National Farmers Union |

| | |
|-------------|--|
| OFWAT | The water industry regulator |
| PAYBACK | Business environment association. |
| PESCA | European initiative providing funding to promote the economic development of fishing dependent areas |
| RE | River Ecosystem |
| RETA | The River Exe and Tributaries Association |
| RFOs | Riparian and Fishery Owners |
| RIGS | Regionally Important Geological Site |
| RO | Riparian Owners |
| RQO | River Quality Objective |
| RSPB | Royal Society for the Protection of Birds |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| SSSI | Site of Special Scientific Interest |
| STW | Sewage Treatment Works |
| SWFPA | South West Fish Producers Organization |
| SWW Ltd | South West Water Limited |
| SWT | Somerset Wildlife Trust |
| TDC | Teignbridge District Council |
| UK | United Kingdom |
| U of Exeter | University of Exeter |
| UWWTD | Urban Waste Water Treatment Directive |
| WRT | Westcountry Rivers Trust |
| Wild Cru | Wildlife Conservation Research Unit (University of Oxford) |

Units

| | |
|---------------------|---------------------------------|
| °C | degrees centigrade |
| g | grams |
| ha | hectare |
| km | kilometres |
| km ² | square kilometres |
| l | litre |
| m | metre |
| m ³ /day | cubic metres per day |
| m ³ /s | cumecs: cubic metres per second |
| mg | milligrams |
| MI | megalitre |
| MI/d | megalitres per day |
| MI/yr | megalitres per year |
| mm | millimetre |
| MW | megawatts |
| ng/l | nanogram per litre |
| ppb | parts per billion |
| µg/m ³ | micrograms per cubic metre |
| < | less than |
| ≤ | less than or equal to |
| > | greater than |
| ≥ | greater than or equal to |
| % | percentage |

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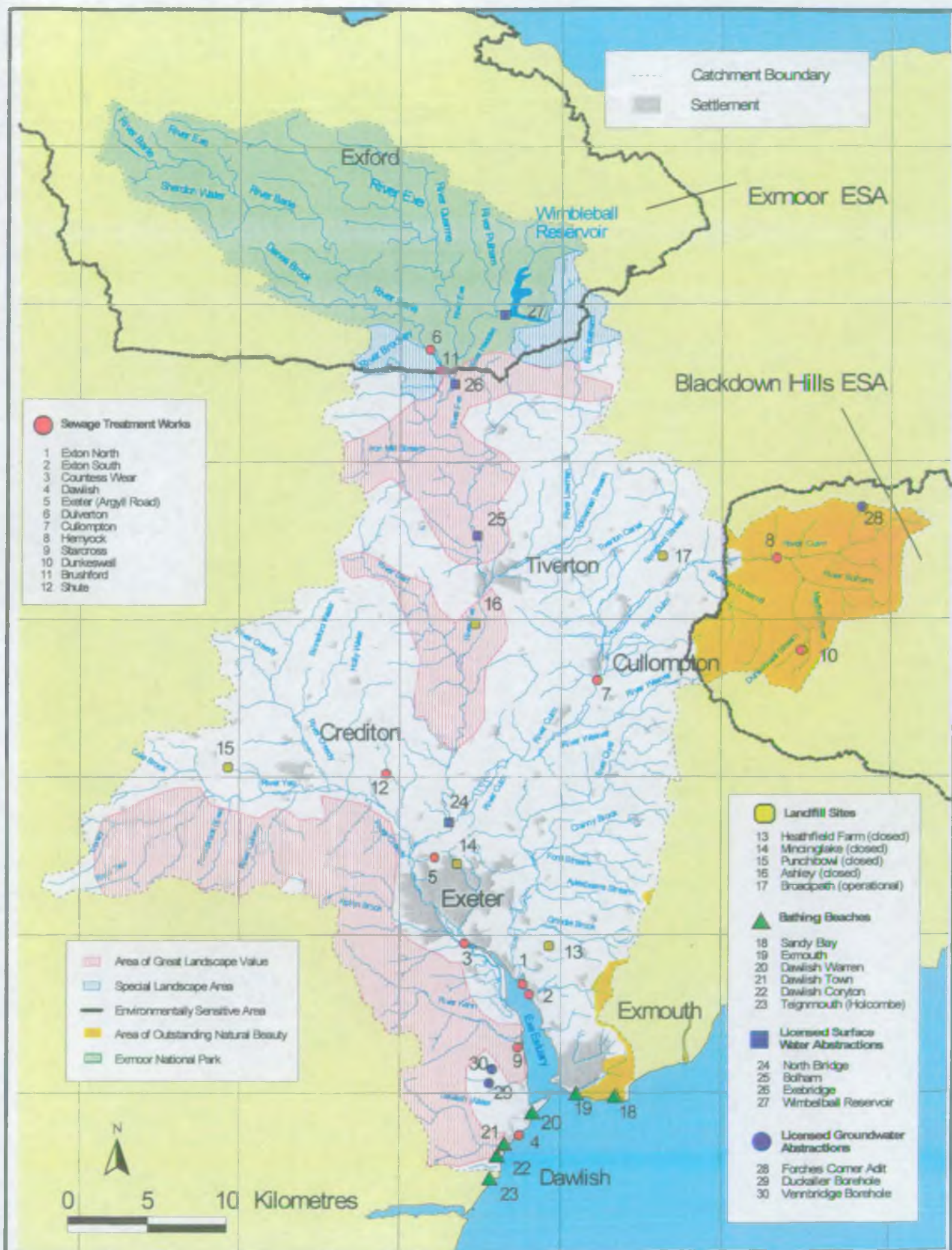
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Map 1 - Exe LEAP Area





Map 3 - Exe Features



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