

# local environment agency plan

## DART

2ND ANNUAL REVIEW

JULY 2000



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AGENCY

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## DART LEAP – 2nd ANNUAL REVIEW

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#### Key to tables:

n/a	Costs not attributable to the Agency	<1k	Costs to Agency are under £1000
u/k	Costs to Agency are unknown	pa	Per Annum

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July 2000

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## CATCHMENT VISION

The integrated management of the environment is a fundamental philosophy for the Environment Agency with Local Environment Agency Plans (LEAPs) taking a key role in this approach.

The Dart Catchment covers a popular area of Devon including part of the Dartmoor National Park and South Devon Heritage Coast. The towns of Dartmouth, Totnes and Buckfastleigh are important economic and tourist centres and it is important that the assets of the catchment are maintained and protected both now and for future generations to enjoy. It is vital that the needs of all uses of the area, including flora and fauna, are balanced to ensure continued protection of these precious assets. This Plan epitomises the Agency's commitment to protect and where necessary enhance the environment through the Agency's own actions or in association with other organisations.

## SUMMARY

Good progress has been made following the publication of the 1st Annual Review of the Dart LEAP in October 1999. Since the publication of the previous review a further 27 actions have been completed and 3 new actions have been developed. The chart below gives a comparison of progress against the previous review.

OFWAT have now agreed the funding and timetable for work to be carried out by South West Water Ltd under Asset Management Plan 3 and this will lead to improvements at 10 treatment works within the Dart catchment. It is anticipated that these improvements will not only improve general water quality in the catchment, but will also lead to improvements for the estuary shellfishery.

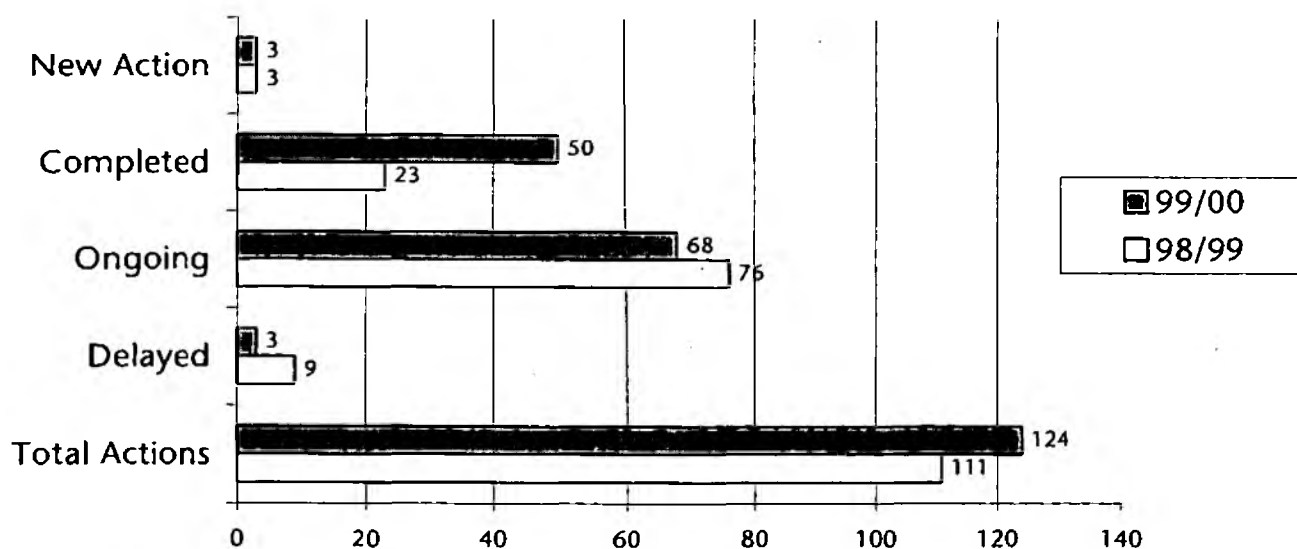
A lack of funding continues to affect our progress on fisheries actions and with some of our work on biodiversity. We continue to seek projects where we can work in collaboration with other organisations such as fishing association to enable improvements to be carried out.

Work with the Dart Estuary Environmental Management Partnership continues to make good progress as does work with the Dart Biodiversity Project.

We are still concerned about the spread of invasive plant species in the catchment as the number of reports of sightings is increasing. We are continuing to raise the issue at a national level and there has recently been an increase in media interest in the problem which we hope will raise the level of awareness amongst the general public as to the damage that these plants can do.

During 2000/2001 we will continue to build on those actions where work has already started and aim to initiate work in those areas where there has been a lack of progress.

**DART LEAP PROGRESS CHART**



## 1. INTRODUCTION

This is the Second Annual Review of the Dart Action Plan. It introduces the Environment Agency and summarises progress made with actions. Previous publications relating to this catchment contain more detail; this review should be read in conjunction with these publications:

River Dart LEAP Consultation Report – June 1997

River Dart LEAP Action Plan – July 1998

Dart 1st Annual Review – October 1999

### 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, 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 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"*<sup>1</sup>.

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 precaution, 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" held in Rio de Janeiro in 1992 was agreement by governments that, to solve global environmental problems, local action is crucial: we must all therefore think globally but act locally.

#### **Our Vision is:**

- a better environment in England and Wales for present and future generations

#### **Our aims are to:#**

- achieve major and continuous improvements in the quality of air, land and water
- encourage the conservation of natural resources, animals and plants
- make the most of pollution control and river-basin management
- provide effective defence and warning systems to protect people and property against flooding from rivers and the sea
- reduce the amount of waste by encouraging people to re-use and recycle their waste
- improve standards of waste disposal
- manage water resources to achieve the proper balance between the country's needs and the environment
- work with other organisations to reclaim contaminated land

- improve and develop salmon and freshwater fisheries
- tell people about environmental issues by educating and informing
- set priorities and work out solutions that society can afford

**We will do this by:**

- being open and consulting others about our work
- basing our decisions around sound science and research
- valuing and developing our employees
- being efficient and business like in all we do

## **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 the Catchment Management Plans, which were produced by the former National Rivers Authority.

The LEAP process involves several stages as outlined below.

**The Consultation Report** - Publication of the Consultation Report 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 Statement on Public Consultation that gave the results of the process.

**The Action Plan** - The Action Plan 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 against an action. These are estimated costs to give the reader an idea of the relative size and resource implications for each action.

**The Annual Review** - We monitor implementation of the Action Plan 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 Report.

**Review of Progress** - The following pages outline updates on the various issues, together with the relevant actions as set out in the Action Plan. 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 2001 and details will be published in the Third Annual Review of the Dart LEAP.

### 1.3 The LEAP Steering Group

This Steering Group represents a range of commercial, local authority, recreational and environmental interests. They commented upon the Consultation Report 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 catchment. They act as a communication link between ourselves, our committees and the local community. They will help to promote and develop initiatives of benefit to the environment within the catchment. The steering group members are:

Name	Representing
Mr G Attree	Local Farmers/National Farmers Union
Mr J Bloomer	South Hams District Council
Mr M Brabin	Dartmoor Preservation Society
Mr T Burnell	Dart Angling Association
Mr K Carter	South Hams District Council
Mr A Dutfeld	Buckfast Spinning
Mr I Edmonds	British Canoe Union
Ms S Goodfellow	Dartmoor National Park Authority
Mr G Heywood	Local Conservation Interests
Mr R Humphrey	Dart Estuary Officer
Mr D Pakes	Dart Fisheries Association
Mr D Ramsden	Barn Owl Trust
Mr D Rayner	Farming and Rural Conservation Agency
Mr R Scoble	Netsmen
Mr P Simpson	Riparian Owner
Mr C Sturmer	Duchy of Cornwall
Mrs M Tomlinson	Devon Area Environment Group
Mr D Trout	Dartington Parish Council
Mr M Williams	South West Water Ltd

### 1.4 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 to the community.

**Local Agenda 21** - This is the global action plan endorsed at the United Nations Conference on Development and the Environment in 1992. It is designed to achieve sustainable development within all levels of our society. Within the catchment, local authorities are assisting local communities to develop strategies and action plans for sustainable development.

Torbay Council have produced a Local Agenda 21 plan and there are a number of initiatives to increase awareness of LA21 issues with Council staff. The Council is involved with the Environmental Education Working Group and supports a number of educational initiatives. There is also a Small Grants Project which supports initiatives such as community gardens, school grounds projects, recycling and a healthy lifestyle video. It is intended to open a Torbay Scrapstore this year where suitable waste from local industries will be collected as a resource for children to use in creative play.

There are two main processes by which South Hams District Council are progressing LA21. Within the Council, concerns are centred on the sustainability of their own activities and an Environmental Management Systems has been put in place to help achieve this. Externally, they have set up an Agenda 21 Steering Group who advise the Council on policy, raise awareness of LA21 and co-ordinate LA21 activities.

Teignbridge District Council have brought Agenda 21 into the mainstream of Council business, adopting it as a core principle for elected members. The Council has been working to involve and engage local

communities in the democratic process through a Youth Parliament, Teignbridge Students Council and through community development projects.

Mid Devon District Council has an internal Environmental Management System which considers all aspects of the Council's activities. The Council is supporting an LA21 Steering Group and there are a number of active local groups.

**Development Plans** - These are produced by Local Authorities to guide the way in which 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 and manage the environment. Other non-statutory plans include:

- The Nature of Devon: A Biodiversity Action Plan (BAP)<sup>2</sup>
- The Nature of Dartmoor: A Biodiversity Profile<sup>3</sup>
- Devon Local Agenda 21 Network Issues Report<sup>4</sup>
- South Devon Area of Outstanding Natural Beauty Management Plan<sup>5</sup>
- Lyme Bay and South Devon Shoreline Management Plan

#### **Dart Estuary Management Plan<sup>6</sup>**

A need was recognised for the management of the estuary in an integrated manner and this led to the development of the Dart Estuary Management Plan. The aim of this plan is to build a sustainable future for the Dart Estuary. A number of organisations are involved with the plan including the main funding partners: South Hams District Council, the Harbour Authority, Duchy of Cornwall, South West Water Ltd, English Nature, Environment Agency, Devon County Council and Devon Sea Fisheries. As well as partnership funding, European Union matched funding has been gained, though funding remains an ongoing issue.

There are a number of objectives in the Dart Estuary Management Plan which arose from the consultation process and these objectives have been translated into actions to be progressed by the identified bodies.

## 2. OVERVIEW OF THE CATCHMENT

Catchment area	475 km <sup>2</sup>
Length of river monitored for classification purposes	210 km
Average annual rainfall	1760 mm approx
Approximate population	31,000
Main settlements	Totnes, Buckfastleigh, Ashburton, Dartmouth
Administrative areas	South Hams District Council, West Devon Borough Council, Teignbridge District Council, Torbay Council, Dartmoor National Park Authority

This plan covers the River Dart Catchment, an area of approximately 475 km<sup>2</sup>. The River Dart is formed from the East and West Dart Rivers that rise on South East Dartmoor. This is an upland granite mass that rises to over 600 m AOD.

Dartmoor is an area of open moorland with high rainfall and acid, peaty soil. Much of it is used for extensive grazing by cattle, sheep and ponies. Many of the headwaters also provide valuable spawning grounds for salmonid fish.

The perimeter of Dartmoor is typified by steep, undulating land with many of the valley sides comprising deciduous woodland. The area surrounding the open moorland is typified by small enclosures and is mainly used for small-scale livestock farming. Field size becomes progressively larger moving away from the moorland.

The River Dart eventually flows under the A38 Devon Expressway, close to Buckfastleigh. This not only marks the edge of Dartmoor National Park, but also serves as an approximate boundary between the granite mass and the relatively low lying but undulating area known as the South Hams. This area is noted for its rich red soils which support more intensive livestock and arable farming. A number of watercourses (River Hems, River Wash, Bidwell Brook and Am Brook) have their source in this area. The River Dart continues through this area to its tidal limit at Totnes. The steep valley sides result in a minimal floodplain. Two major tributaries join the River Dart in its estuary; these are the River Hems and the Harbourne River.

Venford Reservoir is the only reservoir in the Dart Catchment. It is one of the smaller SWWL public water supply reservoirs. There is a second public water supply abstraction on the lower Dart at Littlehempston. The Littlehempston intake abstracts water both directly from the River Dart and from a suite of 'radial collectors' in the vicinity.

### 2.1 Compliance with EC Directives

**EC Bathing Waters Directive<sup>7</sup>:** The Bathing Water at Dartmouth Castle and Sugary Cove met the guideline standards of the Directive in 1999.

**EC Dangerous Substances Directive<sup>8</sup>:** The EQS for copper was exceeded at a site downstream of Buckfastleigh (Kilbury) STW in 1998. Metal concentrations in the Dart catchment are naturally elevated due to underlying catchment geology and, therefore, no further action is proposed.

**EC Surface Water Abstraction Directive<sup>9</sup>:** There have been no failures of this directive in the Dart catchment in 1998.

**EC Freshwater Fish Directive<sup>10</sup>:** There have been no failures of this directive in the Dart catchment in 1998.

**EC Shellfish Waters Directive<sup>11</sup>:** The Shellfish Waters Directive sets standards to protect shellfish from the discharge of polluting substances and includes a guideline standard for bacteria in shellfish flesh, which is included to protect public health. Following a consultation exercise by the Department of Environment, Transport and the Regions (DETR) on whether waters, including a site in the Dart, should be designated

under this Directive, the Government announced, on 8 July 1999, a revision of designated EC Shellfish Waters. Consequently, an area of the Dart near Waddeton has been designated as a shellfish water. We are responsible for controlling discharges to ensure the requirements of the Directive are achieved. This action by the government ensures that the Shellfish Hygiene Directive and the Shellfish Water Directive are now running in parallel, and their key aims of consumer protection and environmental protection will now complement and reinforce each other. (See Issue 1).

**EC Habitats Directive<sup>12</sup>:** We have to review all authorisations and other permissions which we have 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 Directive) 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 seven year programme (1998-2004) to carry out this review, consisting of a four stage process. To date we have completed stages 1 & 2 for priority sites, including Dartmoor cSAC. We plan to complete stages 1 & 2 for non-priority sites by April 2001, including South Hams cSAC and South Dartmoor Woods cSAC. The whole process has been delayed by a European moderation exercise that will result in additional features and possibly new sites being proposed for designation. We assess all new applications for their potential impact on Natura 2000 sites.

## **2.2 1999 Compliance with River Quality Objectives (RQO)**

The data for the RQO compliance for 1999 is currently being assessed.

### 3. PROGRESS TABLES

The following pages give updates for the actions from the Dart LEAP for the year up to July 2000. The current status of each action is indicated in the left hand column as follows:

- X New Action
- Completed/Routine
- ▼ Started/Ongoing
- Delayed/No Progress

#### Issue 1: Impact of Effluent Disposal

We regulate the disposal of effluent to surface and groundwater's 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 the main constituents of many effluents harmless and with proper controls over effluent disposal the environment will not be harmed.

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.

**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), the water services companies and the Office of Water Services (OFWAT). We have agreed with DETR which sewage discharges within the Dart LEAP catchment require improvement under AMP3. OFWAT have now completed a review of water prices which allows for this programme of environmental investment and enables the companies to make the environmental improvements by 2005. Many of these schemes will be delivered before 2005.

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

Discharge	Receiving Water	Required Treatment Level	Due By
Ashprington	River Dart	Improvements to storm tanks under the EC Urban Waste Water Treatment Directive	2005
Dartmouth & Kingswear	River Dart	Secondary treatment required under the EC Urban Waste Water Treatment Directive and UV disinfection required to meet the standards of the EC Shellfish Waters Directive and the guideline standards of the EC Bathing Waters Directive.	2002
Dittisham (Main & Riverside)	River Dart	Secondary treatment required under the EC Urban Waste Water Treatment Directive and UV disinfection required to meet the standards of the EC Shellfish Waters Directive.	2002
Galmpton (Dart)	River Dart	UV disinfection required to meet the standards of the EC Shellfish Waters Directive.	2002
Harbertonford	Harbourne River	Improvements to storm tank required under the EC Urban Waste Water Treatment Directive and further improvements required to protect downstream water quality.	2005
Ipplepen	Tributary of the Am Brook	Storm tank improvements required under the EC Urban Waste Water Treatment Directive and improvements to secondary treatment required to protect downstream water quality.	2005
Princetown	Blackbrook River	Secondary treatment required under the EC Urban Waste Water Treatment Directive and further improvements required to protect water quality downstream.	2001

Scorriton	Holybrook	Secondary treatment required under the EC Urban Waste Water Treatment Directive and further improvements required to protect water quality downstream.	2004
Stoke Gabriel	River Dart	Secondary treatment required under the EC Urban Waste Water Treatment Directive and UV disinfection required to meet the standards of the EC Shellfish Waters Directive.	2002
Totnes	River Dart	Improvements to secondary treatment required to protect downstream water quality and UV disinfection required to meet the standards of the EC Shellfish Waters Directive.	2002

A number of combined sewer overflows will also be improved under AMP3.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
1a ●	Continue to encourage SWWSL to adequately maintain the sewerage system in and around Ashburton.					Action completed, see 1st Annual Review
1b ●	Carry out chemical and biological monitoring to investigate the causes of poor water quality in the River Mardle.					Action completed. See 1st Annual Review.
1c ●	Investigate water quality in the Dean Burn.					Action completed. See 1st Annual Review.
1d ●	Review results of routine monitoring of the River Dart downstream of Buckfastleigh (Kilbury) STW to see if RQO failure recurs.					Action completed. See 1st Annual Review.
1e ●	Install powder activated carbon treatment process at Buckfastleigh (Kilbury) STW.					Action completed. See 1st Annual Review.
1f ▼	Monitor effluent from Buckfastleigh (Kilbury) STW for organophosphate's and synthetic pyrethroids.	Agency	01/07/98	31/03/03	4k p.a.	We are continuing to monitor effluent from Buckfastleigh (Kilbury) STW for these substances. We are not aware of any problems in 1999.
1g ●	Monitor discharge from Buckfastleigh (Kilbury) STW for foaming incidents and presence of process oil in effluent. (Requirement for further monitoring to be assessed after 12 months).					Action completed. See 1st Annual Review.
1h ▼	Investigate alternative options for disposal of solid wastes from scouring process at Buckfast Spinning.	Buckfast Spinning, Scourers Env. Network	01/07/98	31/03/99	n/a	New scouring equipment has been installed at Buckfast Spinning and they are continuing to investigate alternative methods of disposal of scouring waste, including the possibility of composting.
1i	Investigate impact of Landscope (Gulliford Farm) STW on water quality in the	Agency	01/07/98	31/03/99	1k	Monitoring of the discharges from Landscope (Gulliford Farm) and Landscope

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
▼	River Hems.					(Hillcroft) STWs indicate an impact on the receiving waters. Further monitoring of these discharges is required.
1j	Review results of monitoring of the River Hems to see if RQO failures recur.					Action completed. See 1st Annual Review.
1k	Investigate causes of poor water quality in the Bidwell Brook.					Action completed. See 1st Annual Review.
1l	Investigate causes of poor water quality in the Holy Brook.					Action completed. See 1st Annual Review.
1m	Object to further development leading to increased sewage flows in Princetown, Landscope, Cornworthy, Dartmouth, Kingswear, Scorrison and Poundsgate; until improvements to STWs are carried out.	Agency SWWL, TDC, SHDC, DNPA	01/07/98	31/03/03	<1k p.a.	Improvements to Princetown, Dartmouth, Kingswear and Scorrison will be carried out under AMP3. Improvements to Cornworthy will be carried out under a separate programme. We will continue to object to further development until the necessary improvements have been carried out.
1n	Improvements to be carried out under Urban Waste Water Treatment Directive to STWs at: Princetown, Harbertonford, Broadhempston, Scorrison, Cornworthy, Ipplepen, Poundsgate, Dartmouth, Kingswear, Ashprington, Stoke Gabriel, Dittisham - By 2005.	SWWL	01/07/98	31/03/05	n/a	See action 1m.
1o	Netogiate for improvements to be made to the discharge from Totnes STW in AMP3.	Agency	01/07/98	31/03/99	u/k	Totnes STW is to have UV disinfection and improved secondary treatment installed by 31 October 2002 under AMP3. This action is now complete.
1p	Negotiate with private dischargers to ensure that improvements are made - By 2005.	Agency, Private Dischargers	01/07/98	31/03/05	u/k	We will be writing to private dischargers shortly to advise them of the improvements we require to be made.

## Issue 2: Concerns over Effluent Discharges in the vicinity of the Dart Estuary

Actions relating to the EC Shellfish Waters Directive are now being progressed through Issue 1.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
2	Review sites designated					Action completed. See 1st

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
●	under Shellfish Waters Directive - timescales unknown.					Annual Review.

### Issue 3: Risk of Cryptosporidium entering Public Water Supply

There are currently no actions for this issue, however, should the need arise they will be added for future annual reviews.

### Issue 4: Problems Associated with Development

Development within the LEAP catchment is controlled by the local planning authorities of South Hams District Council, Teignbridge District Council, West Devon Borough Council and Torbay Council. The Environment Agency has no direct control over planning matters. However, in order to influence the location and type of development which takes place we maintain involvement in the planning process through contact with the planning authorities, providing support, information and guidance where appropriate.

Increased levels of development can put pressure on water resources, the sewerage infrastructure, can cause air quality problems, generate extra waste, and if carried out in inappropriate locations can lead to an increased risk of flooding.

**Development and flood risk** - Flooding can happen very quickly, often with little warning. Whilst the risk of flooding can be reduced by defences, floods are a part of a natural process and can never be eliminated entirely. We make every effort to issue warnings to people who are at risk from flooding by rivers and the sea, but it is also the responsibility of property owners to take any action necessary to protect themselves and their property. Any person or organisation who wants to receive direct flood warnings should contact us. Leaflets are available which give information on the current service provided and information on flood warnings in force at any time is available via **FLOODLINE 0845 9 88 11 88**.

We advise planning authorities on development and flood risk matters and the Government expects us to ensure that planning authorities have sufficient information to enable them to make informed and sound planning decisions. This information may come from us or it may have to be provided by the potential developer.

Close collaboration is required between us and the planning authorities and effective floodplain protection must recognise the conflicts which exist between development and natural uses and seek to reconcile them in a way which is both balanced and sustainable. This requires comprehensive floodplain land use planning which takes a holistic view. To assist in this we have produced up-to-date and consistent maps of floodplains as part of our survey duties under section 105(2) of the Water Resources Act 1991.

We recently employed an engineering consultancy to re-assess a pre-feasibility study which was carried out for Harbertonford. We are also working with Torbay Council and South West Water to provide information on flood protection for property owners and better flood warning for the centre of Torquay.

The new **Contaminated Land** regulations are came into force on 1 April 2000. The full extent of contaminated land in the catchment is currently not known and this will be assessed by the District Councils following implementation of the new regulations. The District Councils will also be responsible for holding a register of known sites. We will primarily be concerned with sites classified as 'special sites' and will concentrate our efforts on these.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
4a	Review air quality in the area, in line with National Air Quality Strategy.	LA's	01/07/98	31/06/00	n/a	As reported in the 1st Annual Review, all local authorities have now completed Stage I Air Quality Reviews in their districts. Stage II Air Quality Reviews are now being undertaken. Our responsibility on air quality is limited to the regulation of major industries. We do not regulate any in this catchment and will not continue to report on this action. Action complete.
4b	Improve knowledge of status of lichen communities sensitive to air pollution in the catchment.	DNPA, NT, Agency	01/07/98	31/03/01	u/k	The Dartmoor BAP for lichens, ferns and mosses aims to collect information from local naturalists. Recording work is continuing for a Devon Atlas of Lichens. Surveys have been undertaken on some DNPA and NT land and in SSSIs. Research may be stimulated by the newly formed Dartmoor Biodiversity Research Group. As part of action 4a, the protection of vegetation and ecosystems is considered as part of the strategy and the use of lichens as Air Quality Indicators is being developed.
4c	Produce database on contaminated land sites in the catchment.	LA's	01/07/98	31/03/00	n/a	The Contaminated Land Regulations came into force on 1 April 2000. The Local Authorities are now responsible for assessing the extent of contaminated land within their District and they will also hold a database of information. We will be working closely with Local Authorities on contaminated land issues in the catchment and will primarily be responsible for sites classified as 'special sites'. This has now been replaced by Action 4d i (see below).
4d	Ensure there is effective consultation with local authorities (LAs) with regards to contaminated land.	Agency, LA's	01/07/98	31/03/03	<1k p.a.	We have appointed Contaminated Land Officers at both Area and Regional levels to implement the new Regulations and will be liaising with the Local

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
●						Authorities on this matter. (See Action 4c above). This will form part of our routine activities and will not be reported on in future annual reviews.
<b>NEW ACTION</b>						
4d i x	Work with Local Authorities to achieve effective regulation of contaminated land sites in the catchment.	Agency, LA's	01/04/00	31/03/03	u/k	Local Authorities will be assessing contaminated land within the catchment and we will report on progress in the 3rd Annual Review.
4e ●	Ensure new developments take account of sea level rises at Totnes, Littlehempston and Dartmouth.	Agency, LA's	01/07/98	31/03/03	<1k p.a.	This forms part of our routine activities and will not be reported on in future annual reviews.
4f ●	Oppose developments which would increase flood risk at Staverton Mill, Shinnars Bridge and Ashburton.	Agency, LA's	01/07/98	31/03/03	<1k p.a.	This forms part of our routine activities and will not be reported on in future annual reviews.
4g ●	Following provision of floodplain mapping, continue liaison with Planning Authorities to determine where further studies need to be carried out.	Agency	01/04/01	31/03/02	10k	Level A S105 maps have now been provided to DNPA and all Local Authorities have been provided with CDs holding copies of the National Indiviatve Floodplain Maps. There are no Level B studies being planned for this catchment. This action is now complete.
4h ●	Ensure sites of earth science value are identified and protected from development.					Action Completed. See 1st Annual Review.
4i ●	Examine Section 105 survey to identify floodplains, promote & implement Devon BAP for Rivers, Streams, Floodplains & Fluvial Processes particularly in relation to restoration/re-creation of fully functioning floodplains where this would reduce flood risk.	Agency	01/07/98	31/03/03	3k	We continue to seek opportunities for floodplain restoration. This forms part of our routine activities and will not be reported on in future annual reviews.  Actions from the Devon BAP for this habitat will be reported on through Issue 14.
4j ▼	Support PAYBACK/Business Link initiative to reduce waste at source.	PAYBACK, Business Link, Agency, DCC, SHDC, TC, TDC	01/07/98	31/03/01	5k	Work carried out by the South Devon Waste Minimisation Group in 1999 will be continued during 2000 involving local business and Local Authorities. There will be opportunities for new business to join the programme this year.

## Issue 5: Impact of Mineral Extraction

The only working quarry within the Dart LEAP catchment is Linhay Quarry at Ashburton. This quarry lies within the boundary of Dartmoor National Park and has a significant impact on the surrounding environment. The disposal of runoff from the site has historically been a problem, causing high levels of suspended solids in local watercourses. We have been working with the owners to ensure that improvements are made to the discharge from the site and these improvements have now been carried out.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
5a	Ensure key habitats are identified and protected from mineral extraction activities.	Agency, DWT, DCC	01/07/98	31/03/03	<1k p.a.	This forms part of our routine activities and will not be reported on in future annual reviews.
5b	Continue to liaise with Linhay Quarry to seek further improvements to the discharge and to reduce the impact of the quarry on the environment.					Action completed. See 1st Annual Review.
5c	Following closure of Whitecleaves Quarry, need to ensure that the scientific interest of Potters Wood SSSI is maintained.	EN, Quarry Owners, LA's, DNPA	01/07/98	31/03/03	n/a	English Nature, in conjunction with the Devon & Cornwall Underground Council and the landowner, have developed a cave management plan for the site to ensure its future. The land is also now in a Countryside Stewardship agreement. This action is now complete.
5d	Promote and implement BAP for Devon and Dartmoor for Pits and Quarries and Caves and Mines.	DWT, RIGS, EN, DNPA, Agency	01/07/98	31/03/03	2k	This continues to be carried out under our routine activities.
5e	Produce guidance notes for mineral operators on ways of enhancing restoration and after use of pits and quarries to benefit wildlife and earth science conservation.	RIGS, DCC	01/04/00	31/03/01	n/a	Guidance on restoration has been produced at a National level and Devon County Council are not intending to produce their own. English Nature, together with the minerals industry, have also produced guidance on restoration and will provide advice as necessary. This action is now complete.
5f	Give increased consideration to natural regeneration as a method of site restoration, as opposed to infilling and planting, with due consideration to public safety.	DCC, Operators, DNPA Agency	01/07/98	31/03/01	n/a	Devon County Council are increasingly pursuing the use of natural regeneration methods where appropriate and will provide advice on a site as necessary. This action is now complete.

## Issue 6: Impact of Abandoned Mines

Devon has a mineral mining heritage as diverse and ancient as that of Cornwall, but on a much smaller scale. This has resulted in some long term impacts upon the environment, in particular on water quality. There are two major problems associated with abandoned mines; acidic water draining from the mine into surface and groundwater and increased leaching of metals from the surrounding ores. Routine monitoring of surface waters in the catchment has not highlighted any problems which could be attributed to abandoned mines. Projects undertaken by the Agency have concentrated on abandoned coal mines with a potentially high environmental impact, primarily within Wales and the Midlands.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
6	Identify and assess effects of abandoned mine workings on unmonitored watercourses and where necessary identify remedial actions to address problems.	Agency	01/07/98	31/03/00	8k	We have not identified any effects from abandoned mine workings within the Dart catchment and will be taking no further action with respect to this issue. This action is now complete.

## Issue 7: Impact of Farming and Forestry on Rivers and Wetlands

The Dart catchment is predominantly rural which large areas used for agricultural and forestry purposes. Over the last 10 years, farmers throughout Devon have made great improvements in waste storage and disposal and this has resulted in a significant reduction in the number of point source pollution incidents, but work is still needed to solve the problems caused by diffuse pollution.

Farming activities in some parts of the catchment can impact of biodiversity of the area through the loss of habitats such as blanket bog and valley mires which are found on Dartmoor. Damage to these habitats can be caused through drainage for agricultural purposes and over grazing by animals. Damage can also be caused to salmonid spawning areas through inappropriate land management.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
7a	Work with Prison Authority to seek better farming practices and facilities to reduce the risk of diffuse pollution entering the Blackbrook.	Prison Farm, DNPA, Agency	01/07/98	31/03/00	<1k	As reported for the 1st Annual Review, the Dart Biodiversity Project and the Agency continue to work with the Prison Farm to reduce the risk of pollution entering the Blackbrook.
7b	Encourage uptake of ESA agreements.	MAFF, Agency, DNPA	01/07/98	31/03/03	<1k p.a.	Since the launch of the Dartmoor ESA in 1994, approximately 650 participants have joined the scheme. A revision to the scheme came into effect in September 1999.
7c	Work with MAFF to ensure agri-environment schemes have appropriate prescriptions and that payments are set at correct level.	Agency, DNPA, EN	01/07/98	31/03/03	<1k p.a.	MAFF carried out a review of the ESA scheme for Dartmoor during 1999. We were consulted as part of this review and various recommendations were made. This is an ongoing process and further recommendations will be

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
▼						made during future reviews as appropriate. We are involved in reviewing target areas and objectives of the Countryside Stewardship (CS) scheme. We are also consulted on individual CS applications involving watercourses and wetlands.
7d ▼	Consider establishing buffer zones alongside rivers to reduce damage to banks by stock, reduce soil erosion and reduce diffuse pollution.	Agency, DNPA, Landowners	01/07/98	31/03/03	u/k	Some key sites where buffer zones could be established have been identified within Dartmoor National Park. Establishment will be carried out as part of the Dart Biodiversity Project.
7e ▼	Facilitate the securing of funding for bankside fencing to reduce erosion, where appropriate.	Agency, Landowners	01/07/98	31/03/03	u/k	Discussions are taking place between DNPA, Duchy, DFA and ourselves regarding bankside fencing at key points in the upper catchment. Further fencing is proposed on the East Webburn in 2000.
7f ▼	Continue gravel rehabilitation work to remove the build-up of silt to re-establish the gravel's for salmonid spawning and monitor the effectiveness of this work.	Agency, DFA, DAA, Netting Interests	01/07/98	31/03/03	3k p.a.	Since the 1st Annual Review, gravel rehabilitation work has also been carried out on the East Webburn, Stannon and Broadaford Brook and there are plans for further work for the coming year.
7g ●	Encourage adoption of best practice for swaling (controlled burning).	DNPA, FRCA	01/07/98	31/03/03	n/a	This action will now be progressed through action 9a.
7h ▼	Implement recommendations arising from investigations of the Bidwell Brook.	Agency	01/07/99	31/03/00	<1k	Work is being undertaken this year to address farm related problems which were identified during the investigation.

### Issue 8: Potential Eutrophication of the Dart Estuary

Estuaries tend to be naturally quite high in nutrients; however an excess of nutrients (principally nitrates and phosphate) can result in increased production of algae and plants. If algal production becomes excessive then this can cause deterioration to the chemical, biological and aesthetic quality of the estuary.

The Dart Estuary from the Normal Tidal Limit just upstream of Totnes STW to the mouth of the estuary has been identified as a potential Sensitive Area (Eutrophic) under the Urban Waste Water Treatment Directive<sup>12</sup> and a potential Polluted Water (Eutrophic) under the Nitrates Directive.

If the estuary is found to be eutrophic, measures to limit nutrient inputs from sewage discharges or farming may be required.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
8 ▼	Conduct chemical and biological monitoring to investigate the nomination of the estuary as a Sensitive Area or Polluted Water.	Agency, DETR	01/07/98	31/03/02	25k	We are now in the third year of comprehensive data collection exercise. We will report on the outcome of the studies in 2001 once analysis of the data has taken place.

### Issue 9: Concern over Low Flows

In the Dart Catchment low flows are only an issue in dry summers. However, there are concerns that low flows in the river during dry summers have been exacerbated by changes in land use and drainage. The potential for water retention on the moor is thought to have declined, possibly resulting in a reduced retention time for water in the catchment as a whole.

Moorland watercourses naturally rise and fall quickly in response to rainfall. However, there is some concern that they have become even more 'flashy' in recent years, giving rise to lower flows during dry periods and higher flows during wet periods. The vegetation cover on Dartmoor is thought to have changed in recent decades, with a loss of heather and degradation of blanket bog being recorded in certain parts. It is possible that a change in vegetation cover could affect the hydrology of the moorland watercourses, although there is currently no data available to support this supposition. Furthermore, the practice of uncontrolled burning could affect the hydrology of the moorland by altering the soil structure. Alterations to both soil structures and vegetative cover could also affect the way nutrients are leached from the soil.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
9a ▼	Conduct research into the effects of 'swaling' and changes to moorland vegetation on both catchment hydrology and nutrient leaching and encourage the adoption of best practice for controlled burning.	Plymouth University, Exeter University, EN, Agency, DNPA, FRCA	01/07/98	31/03/01	2k p.a.	A jointly funded PhD research project being carried out by Plymouth University is due to be completed in 2001 and we hope to be able to report on this in the 3rd Annual Review. Studies are also being carried out by Exeter University and again we will report on this when information is available.  A Moorland Liaison Group has been set up to provide advice on best practice for swaling to farmers on Dartmoor and the Commoners Council have also drawn up plans for controlled burning over a 5 year period.
9b ▼	Develop and implement appropriate actions following completion of research.	EN, DNPA, Agency	01/04/00	31/03/02	u/k	This action was due to start in April this year. However, until Action 9a has been completed, we will not be able to develop actions.
9c	Support research into climate change and assess acceptable water flows in watercourses.	Agency	01/07/98	31/03/01	u/k	There is ongoing R&D being carried out aimed at helping Agency functions to consider

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
▼						potential impacts of climate change. There is also ongoing R&D on water flows in watercourses.

#### Issue 10: Barriers to Fish Migration

There are 28 weirs and other obstacles in the catchment, some of which are complete barriers to the migration of salmon and sea trout. Many of the major weirs in the system have efficient fish passes and allow migratory fish free passage. However, some weirs that do not have passes seriously inhibit the movement of fish as they only permit migration during a limited range of flows. In many cases improving conditions at these weirs is of considerable importance as they prevent free access to major spawning grounds. We have limited resources to carry out these improvements and are now very reliant on external contributions and collaborative schemes to ensure that they are achieved.

There are abstractions at some sites in the system which create problems for the downstream migration of smolts. The installation of screens has proved an effective means of alleviating the problem, and recent changes in legislation made it a requirement for all abstractors to have screens installed to the satisfaction of the Agency by 1 January 1999, where a need was identified. Fish farms and abstractors also have to have continuous by-wash flowing at all times to allow downstream migration of smolts.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
10a	Identify sites which create problems for the downstream migration of smolts.	Agency	01/07/98	31/03/99	1.5k	We now have identified sites within the catchment which we believe create problems for migration. We are looking to work with the owners to alleviate the problem and this will be progressed through Action 10b. This action is now complete.
10b	Following National Guidance on screening criteria; advise abstractors fo the Agency's screening requirements and work towards implementation.	Agency, Abstractors	01/07/98	31/03/03	4k	We are currently discussing screening for the Buckfast Abbey HEP abstraction. the Abbey are currently considering a number of possible solutions.  Other sites which are causing concern will be addressed over the next two years.
10c	Identify remaining obstructions to migration and consider fish pass installation if appropriate.	Agency	01/07/98	31/03/03	u/k	Design and tendering for Strode Road Bridge fish pass has been completed and construction has now started. Three obstructions have been identified on the Dean Burn which are in need of improvement and there is one site on the River Mardle at Merryfield.

## Issue 11: Risk of Over Exploitation of Salmon fishery

In March 1998, the Agency reported that 1997 salmon catches were among the worst on record and that nationally, salmon stocks were depleted. Of particular concern has been the long-term decline of the larger, early running salmon which are believed to be genetically different from later running stocks.

In July 1998, following advice from the Regional Fisheries, Ecology and Recreation Advisory Committee, the Agency advertised and subsequently introduced byelaws to protect the early running fish by restricting exploitation from both the net and rod fisheries.

The byelaws will run for a ten year period although there will be a major review of stocks after five years. In addition, the Agency will also be looking to develop further measures on a river by river basis.

The National byelaws are considered the lowest common denominator across the country addressing the national problem of a decline in early-run, large salmon. Measures to address other local stock problems will continue to follow a river-by-river approach based on the programme of individual Salmon Action Plans developed by the Agency with local fisheries interests. On the Dart, the process commenced in October 1999.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
11a	Carry out detailed analysis of fishery data including juvenile surveys, setting spawning targets, egg deposition rates and declared catch returns.					Action completed. See 1st Annual Review.
11b	Introduce catch controls and new NLO to manage exploitation in line with the findings of above.					Action completed. See 1st Annual Review.
11c	Consider introduction of rod and net fishing byelaws to reduce exploitation of spring fish.					Action completed. See 1st Annual Review.
11d	Produce Salmon Action Plan for the River Dart.	Agency	01/07/98	31/03/01	5k	<p>An initial meeting of the Salmon Action Plan group has taken place. A plan is being prepared which will take into consideration comments received. The formal Consultation Document is due to be available in August 2000.</p> <p>In addition to the Salmon Action Plan, the Dart Biodiversity Project are carrying out a programme of works to aid salmon on Dart in agreement with ourselves and the Dart Fisheries Association.</p>
11e	Carry out study to identify behaviour and spawning preferences for spring salmon, if funds available.	Agency, Others	01/04/99	31/03/01	15k p.a.	A spring salmon tagging scheme has been implemented for the 2000 season. Fish released by rod and netsmen are tagged

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
▼						which may help to provide information in relation to how fish move through the catchment, and where they are spawning.
11f	Promote voluntary conservation measures for spring fish until formal measures are in place.					Action completed. See 1st Annual Review. In addition to the update for the 1st Annual Review, voluntary measures will also be considered to provide protection for multi sea winter salmon and grilse.
11g	Develop resistivity fish counter as funds become available (timescale depends on availability of funding).	Agency, WRT, Fisheries Interests	01/07/98	31/03/03	60k	No progress to report in 2nd Annual Review.

### Issue 12: Additional Threats to Fish Stocks

Concerns have been raised regarding the decline in brown trout catches in the catchment over recent years and in the increase in fish-eating birds. Both issues require further investigation to assess whether these problems are real or perceived.

Historically, fishing interests have stocked various reaches of the Dart with farmed brown trout originating from a variety of sources to improve the quality of angling. This practice may have an adverse effect on the native population by increasing competition for food and habitat, and by increasing predation of native juveniles. Furthermore, the continued introduction of farmed fish will modify the genetic integrity of remaining native stocks.

There has been a long running debate on the perceived impact of fish-eating birds (namely cormorants) on fish populations and angling catches. We have no legal powers to issue licences for the control of these birds. This lies with MAFF. We recognise that there is concern over the levels of predation and where serious damage to a fishery is occurring will support licensed culling. There is a well-established legal process for fishery owners to pursue if they consider fish-eating birds are having a serious impact on their fishery and we will continue to provide information to fishery and conservation interests to help determine the impact. Following a four year period of research into the matter, the Government indicated it would like to consider the view of fishing and bird conservation interests before making any final decisions on whether to change legislation. MAFF, DETR and selected organisations will meet to discuss whether the current government policy need to be revised in light of the reports findings. We will only be in a position to determine our own approach to the recommendations made once this review has taken place. We are mindful that there will be circumstances where maintaining the population of fish (e.g. salmon) will be the primary concern. Considering the decline in salmon stocks and measures put in place to restrict catches, there may be circumstances where the control of fish-eating birds will be considered.

No.	Action	Lead by / other	Start Date	End Date	Cost	Progress
12a	Carry out research into perceived decline instock of brown trout.	Agency	01/07/98	31/03/00	20k	The River Dart was identified in Phase I of the study as being a river where there was evidence of a decline in brown trout. Phase II of the study will take place this summer and will seek to identify causes for the

No.	Action	Lead by / other	Start Date	End Date	Cost	Progress
▼						decline, concentrating in particular on the Cherry Brook.
12b ▼	Discourage stocking with fish other than those originating within the catchment.	Agency, Fishing Associations	01/07/98	31/03/03	<1k	Juvenile trout were transferred to Newhouse fishery from Jordan leat for on-growing. Growth and survival are currently being monitored to assess whether the scheme is successful.
12c ▼	Promote habitat enhancement as a preferred method of improving stock levels.	Agency	01/07/98	31/03/03	<1k	A major coppicing and river corridor clearance project was undertaken along the East Webburn. A smaller scale scheme was also completed on the Broadaford Brook.
12d ●	Co-operate with the licensing authority to progress further research into the issue of fish-eating birds.	Agency, MAFF, Landowners, Anglers	01/07/98	31/03/03	<1k	The R&D is now complete. Our policy remains unchanged. MAFF are to meet with relevant organisations to discuss the study findings and decide what action to take. Our approach may be influenced by the decisions reached at this meeting. Also see Action 12f i. This action is now complete.
12e ▼	Continue to work positively with fishery owners and anglers to establish the full facts in each situation.	Agency, MAFF, Landowners, Anglers	01/07/98	31/03/03	<1k	See action 12d and 12f i.
12f ●	Implement recommendations from R&D research into fish-eating birds.					Action completed. See 1st Annual Review.
12f i ▼	Establish Agency approach to the issue of fish-eating birds following MAFF/DETR decision regarding government policy in the light of R&D findings. (This action supercedes 12f).	Agency, MAFF, DETR	01/04/99	31/03/01	u/k	This will depend on the outcome of discussions between MAFF and relevant organisations.
12g ●	Promote habitat enhancement as a preferred method of improving stock levels.	Agency	01/04/99	31/03/02	3k p.a.	This is a duplicate of action 12c and will be removed.

### Issue 13: Acidification of Dartmoor

Moorland streams are typically acid due to the underlying geology and soils. The natural acidity of Dartmoor could be exacerbated by atmospheric acid deposition. The main components of acid deposition are sulphur dioxide and oxides of nitrogen. These components come mainly from the burning of fossil fuels, the principle sources being power stations, other industrial processes and traffic. Coniferous forests can also

increase the level of acid deposition due to way the forest canopy 'scavenges' pollutants from the atmosphere, and the acidic compounds released when pine needles break down.

Acid deposition across much of Dartmoor is estimated to be at a level at which harmful effects may occur. The moorland ecosystem is particularly sensitive to acid deposition as the soils have little capacity to neutralise acidity. Currently there is no evidence to suggest that pH levels experienced in the Dart are influencing juvenile salmonid stocks. There are concerns that valley mire and blanket bog habitats could be affected.

More information is required to ascertain whether or not acid deposition is causing any detrimental effects in this catchment.

No.	Action	Lead by / Other	Start Date	End Date	Cost	Progress
13a	Ensure Part A processes authorised under IPC legislation achieve planned emission reductions.					Action completed. See 1st Annual Review.
13b	Promote measures to reduce emission of nitrogen oxides from traffic.	DCC, LA's	01/07/98	31/03/03	n/a	Local Authority Stage II Air Quality Reviews will be looking at this issue. The Agency has no remit over traffic pollution and we will no longer report on this action.
13c	Examine performance of salmonid fishery as part of Salmon Action Plan.	Agency	01/07/98	31/03/00	u/k	This will be carried out as part of the Salmon Action Plan which will be available for consultation in August 2000. It will not be reported on in future annual reviews of the LEAP. Action completed.
13d	Conduct research to improve understanding of acidification of Dartmoor and its effects.	Universities, IFE, Agency, DNPA	01/07/98	31/03/03	u/k	The study by the Institute of Freshwater Ecology is currently underway. We hope to be able to provide an update on the work at the 3rd Annual Review. Our National Centre for Risk Analysis and Options Appraisal has produced a report entitled "Total Acidity Deposition Footprints for Individual Sources in England and Wales and Risk of Critical Load Exceedance in relation to Habitats Directive Sites".
13e	Assess impact of any proposals for afforestation >10 ha within the acid sensitive area.	Agency, FC	01/07/98	31/03/03	<1k p.a.	There are currently no proposals within this catchment. This forms part of our routine activities and will not be reported on in future annual reviews.

## Issue 14: Biodiversity and Earth Science

The conservation of Biodiversity, or the variety of life, has been recognised as an international issue. "Biodiversity: The UK Action Plan" was published in 1994 and since then a number of regional and local plans have been produced. Biodiversity actions for the Dart LEAP area are aimed to be integral with/guided by the following documents; Biodiversity: The UK Steering Group Report<sup>13</sup>, The Biodiversity of the South-West<sup>14</sup>, The Nature of Devon - A Biodiversity Action Plan<sup>2</sup>, Action for Wildlife - the Dartmoor Biodiversity Action Plan (currently in draft format).

The Biodiversity Action Planning process has continued to develop with Action Plans now extending to six volumes covering a very wide range of species and habitats. We are the contact point or Lead Partners for a number of additional species, mainly the lower plants and invertebrates. Devon rivers have been found to be particularly valuable for river shingle beetles, although no surveys have been carried out on the Dart as yet.

National and County targets for habitats and species have been set and we are progressively adapting them on a catchment scale. The first of these new targets for the Dart LEAP are included below. Some of the actions for Biodiversity and Earth Science have been reworded to reflect the current status with Biodiversity Action Planning in the catchment.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
14a ▼	Support the Dart Biodiversity Project.	Agency, DNPA, Duchy, EN, Leader II	01/07/98	31/03/00	5k p.a.	Work is now ongoing on a number of sites as part of the project, including: bank erosion work, habitat improvement, education and awareness.
14b ●	Complete process of identifying key features, habitats and species in Devon catchments, and set catchment specific targets where appropriate.					The BAPs mentioned above have been used to set catchment specific targets for those habitats and species identified. Action completed. See 1st Annual Review.
14c ▼	Implement actions from Devon BAP for Wet Woodland by identifying of key sites and supporting invertebrate surveys.	Agency	01/07/98	31/03/03	u/k	Some progress has been made on identifying priority sites and biodiversity interest at a County level.
14c Target:	Determine extent of resource and creation opportunities and prioritise conservation action by the end of 2000, with the initial aim of creating 5ha by 2005.					
14d ●	Identify key sites of wet woodland within the catchment to achieve better understanding of extent and value.	Agency, DNPA, FC, EN, NT, DWT, Others	01/04/00	31/03/01	2k	This action has now been merged with action 14c.
14e ●	Support survey to determine invertebrate interest of wet woodland.	Agency, NT	01/04/01	31/03/02	5k	This action has been merged with action 14c.
14f ▼	Implement actions from Devon BAP for Reedbeds - including encouragement of creation of new reedbeds and conservation management of existing areas.	Agency, EN	01/07/98	31/03/03	2k	Advice has been given on estuarine reedbed management at Ashprington.
14f Target:	Ensure no net loss of habitat and create 1ha of new reedbed by 2010.					

No.	Action	Lead/By / Other	Start Date	End Date	Cost	Progress
14g ▼	Implement actions from Dartmoor BAP for Blanket bog - includes prevention of uncontrolled burning to protect hydrology	DNPA, Agency, RSPB, DBWPS, EN	01/07/98	31/03/03	2k	Holne Moor commons are now entered into the ESA scheme. The Moorland Farmer Liaison Group has made good progress on mapping proposed burns on commons and English Nature are drawing up a policy statement on moorland burning. Also see Action 9a.
14g Target:	Achieve 90% of total resource in catchment on Dartmoor in favourable management condition (with particular attention given to hydrologically linked sites and the effects of water abstraction) by 2005					
14h ▼	Implement actions from Dartmoor BAP for Valley mire - includes possible research into hydrology and water quality.	Agency, Universities	01/07/98	31/03/03	u/k	This action is ongoing. Also see Action 9a.
14h Target:	Ensure all located valley mires are maintained or restored to a favourable management condition (e.g. in terms of hydrology) by 2005					
14h i ▼	Implement actions from Devon BAP for Curlew - includes control of disturbance (see also estuaries).	DNPA, Agency, RSPB, DBWPS	01/07/98	31/03/03	2k	Mark Halliwell of DBWPS has been appointed as the new BAP champion for curlew. A survey programme is underway looking at known breeding sites to assess habitat and behaviour.  A joint DBWPS and Agency leaflet which is aimed at landowners and landmanagers is to be published this autumn.
14h i Target:	Increase numbers of breeding curlew in catchment by 25% from 1998 levels (less than 20 pairs on Dartmoor) by 2010.					
14i a ▼	Implement actions from Devon BAP and Dartmoor BAP for Rhôs pasture - includes promoting management agreements, scrub clearance.	DNPA, Agency, EN	01/07/98	31/03/03	3k	DNPA and ourselves have carried out ten collaborative projects to date, involving scrub clearance and stock fencing to control grazing levels.  85% of the Rhôs pasture on the West Webburn is in management agreements.  Agency staff have attended training courses on the matter to increase awareness.
14i a Target:	Restore 10ha of Rhôs Pasture (or as amended by strategic prioritisation of restoration sites) by 2005					
14i b	Implement actions from Devon BAP and Dartmoor BAP for Marsh Fritillary - includes habitat restoration, correct grazing regime.	DNPA, BC, Agency	01/07/98	31/03/03	2k	Many marsh fritillary sites are now managed under agri-environment schemes, but there is concern that generic grazing prescriptions are leading, in some cases, to unsuitable conditions for

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
▼						their survival. Butterfly Conservation have produced specific advice on managing damp grassland for marsh fritillary butterflies, which are being circulated to culm grassland owners. Agency staff have attended training courses to increase awareness.
14i b	Maintain or restore a minimum of one large population (1000+ adults) within the catchment by 2005					
Target:						
14i c	Implement actions from Devon BAP and Dartmoor BAP for Southern Damselfly - includes protection of hydrology, possible re-introduction.	DNPA, Agency	01/07/98	31/03/03	2k	We have been working with DNPA on collaborative projects for this action. Projects mentioned in 14i are also aimed at benefiting Southern damselfly.
▼						
14i c	Maintain current population and re-introduce to one former site in the catchment by 2005.					
Target:						
14j	Implement actions from Dartmoor BAP for Upland heath - includes prevention of uncontrolled burning, and overgrazing.	DNPA, EN	01/07/98	31/03/03	n/a	The use of best practice for swaling is being promoted through the Dartmoor BAP. The Fireplan initiative set up by the Commoners Council is also continuing. A number of commons are now part of the Dartmoor ESA scheme and management plans are being drawn up which will help protect area of Upland heath. Also see update for Action 9a.
▼						
14j	Maintain moorland in catchment on Dartmoor with >25% dwarf shrub cover and restore 20ha of degraded heath to >25% dwarf shrub cover by 2005					
Target:						
14k i	Implement actions from Devon BAP and Dartmoor BAP for Rivers, Streams, Floodplain & Fluvial processes - includes pollution control, production of water level management plans, increase floodplain woodlands.	Agency, EN, LA's, Riparian Owners	01/07/98	31/03/03	5k	Much of this action is covered by our routine activities. Where we do carry out work, we seek opportunities to protect and enhance conservation value of watercourses and wetlands. We discourage modifications such as culverting, inappropriate bank protection work and interference with natural channel features.
▼						
14k i	Ensure no net loss of river length and natural features. Restore 10km of river channel and 10ha of floodplain by 2001					
Target:						
14k ii	Implement actions from Devon BAP for Otter - includes continued post-mortem examinations, habitat restoration.	Agency, DWT, Riparian Owners	01/07/98	31/03/03	3k	There is concern over the increase in road mortalities. All recovered corpses continue to be sent for post-mortem examination. The National Otter Survey is currently being repeated and

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
▼						for the first time will give us information on the distribution in South Devon.
14k ii Target:	Safeguard and strengthen breeding otter populations on all watercourses and major water bodies within the catchment					
14k iii ▼	Implement actions from Devon BAP for Water vole - includes identifying existing populations, carry out and support habitat restoration.	DWT, Agency, EN, DCC	01/07/98	31/03/03	2k	Records are exchanged between ourselves and the Devon Biological Records Centre. Any reported sightings are followed up to confirm records. Very few populations are known at present.  The replacement of the DWT Rivers and Wetlands Project Officer will concentrate on surveying for water voles as a priority. Habitat restoration will be considered as the knowledge of distribution increases. The impact of mink on water voles continues to cause concern, but there is some evidence of a decline in mink numbers.
14k iii Target:	Complete survey of the catchment by 2001 and ensure protection of any extant populations. If appropriate restore 5km of suitable habitat by 2005					
14k iv ●	Implement actions from Devon BAP for Salmon. See Issue 10 & 11 for actions on Salmon.					Action completed. See 1st Annual Review.
<b>NEW ACTION</b>						
14k v x	Implement actions from Devon BAP and Dartmoor BAP for bats - includes protection and restoration of wetland and riparian habitats and encourage water quality levels which will help support populations of aquatic insects on which bats feed.	Agency, EN, DNPA, Devon Bat Group, DWT, others	04/07/00	31/03/03	u/k	Some work will be carried out as part of our routine activities, but it is hoped to implement some pro-active actions as appropriate. We will report on any progress at the 3rd annual review.
14k v Target:	Ensure protection of all known roosts. Achieve a 30% increase in bat populations within the catchment by 2010.					
14l ●	Support county-wide survey of sand martin and kingfisher nest sites.				u/k	Action completed. See 1st Annual Review.
14m ▼	Retain all known sand martin and kingfisher sites and seek to create suitable conditions for colonisation elsewhere.	Agency, NT	01/07/98	31/03/99	<1k p.a.	We seek to encourage natural fluvial processes that provide cliffs suitable for nesting sites.
14n ▼	Promote measures to prevent loss of earth science sites and features in rivers and floodplains.	Agency, NT, DNPA	01/07/98	31/03/99	u/k	RIGS sites have now been identified for the inland areas of South Devon and Dartmoor. Also see Action 14k i.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
14o	Identify areas where flood control standards could be relaxed to improve/enhance wetland habitats.	Agency	01/07/98	31/03/01	<1k p.a.	This action will now be progressed through action 14k i and updates will be reported under that action.
14p	Implement actions from Devon BAP for Estuaries and Estuarine Habitats - includes protection from development, mapping eelgrass beds.	Agency, LA's	01/07/98	31/03/03	2k	Several areas in Dartmouth have been identified for development proposals, which may have an impact on intertidal areas. We are encouraging sensitive development that enhances conservation and recreation value.
14p Target:	Ensure no net loss of intertidal area. Achieve a 10% increase in area of saltmarsh by 2010					
14q	Identify and document County Geological Sites.					Action completed. See 1st Annual Review.
14r	Encourage greater appreciation and understanding of County Geological Sites.	Agency, DCC	01/07/98	31/03/03	<1k p.a.	A County Education Register has been published and will be available from DCC in a variety of electronic formats.
14s	Include suitable survey techniques for lamprey in routine fisheries survey work, with identification to species level.					Action complete. See 1st Annual Review.

### Issue 15: Spread of Invasive Plants

There are several alien plant species present in the catchment, which are excellent colonisers and which are spreading at the expense of more natural vegetation. Himalayan balsam and Japanese knotweed are widely established, and Giant hogweed, although rare, presents a significant risk to health. Under the Wildlife and Countryside Act 1981 (Section 14 (2)) it is an offence if any person plants or otherwise causes to grow in the wild plants such as Japanese knotweed or giant hogweed. New legislation is anticipated shortly to aid regulation of invasive plants.

We have produced a leaflet dealing with these three species and their control, which is available from our offices on request and distributed at events which we attend such as the Devon County Show. Cornwall County Council have produced a guidance leaflet for developers and hauliers on the prevention and control of Japanese knotweed, and the Scottish Agricultural College have produced a leaflet on Giant hogweed control.

There are also several non-native aquatic plants, which appear to be spreading mainly through garden ponds and lakes to which they have been introduced. The most problematic species are parrot's feather (*Myriophyllum aquaticum*), fairy fern (*Azolla filiculoides*), Australian swamp stonecrop (*Crassula helmsii*), and floating marsh pennywort (*Hydrocotyle ranunculoides*). The rapid growth of these plants leads to deoxygenation of the water at the expense of other organisms and reduces biodiversity. Although they may look attractive, the plants present a public safety hazard as they form dense mats on the surface of the water which can be mistaken for solid ground. It is extremely easy for these plants to be spread unwittingly as the tiniest fragment introduced on another plant will soon flourish. Floating marsh pennywort (*Hydrocotyle ranunculoides*) and Australian swamp stonecrop have been recorded in a pond at Berry Pomeroy. We are endeavouring to arrange a collaborative project to eradicate them.

We have raised our concerns with the relevant trade associations and have asked them to increase awareness amongst retailers as to the threats presented by these plants. As it is not against the law to sell these plants,

we are not in a position to ban them from sale. There has been a successful press campaign aimed at increasing public awareness, and we suggest that they be removed from ponds where possible. We wish to know more about the distribution of these plants in the catchment and would encourage people to continue to inform us of any sites where they occur within the catchment.

Together with Plantlife, we are continuing to raise the issue of invasive plants at a National level. Media interest is increasing, the issue was recently highlighted on the BBC Watchdog programme, and new legislation is anticipated shortly to aid regulation of invasive plants.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
15a ▼	Encourage recording of invasive plants by field staff and others.	Agency	01/07/98	31/03/03	<1k	We continue to receive an increasing number of reports and are currently developing a GIS based database to hold this information. We also encourage submissions from members of the public and other organisations and are developing a standard recording form for this purpose.
15b ▼	Raise awareness of problem of Australian swamp stonecrop and Parrots feather through garden centre trade associations.	Agency, Garden Centre Trade Associations	01/07/98	31/03/03	2k	Together with Plantlife we are continuing to raise the issue of invasive plants at a national level and media interest in the subject is increasing. This action was originally due to be completed in 1999, however, due to the increasing problems with invasive aquatic plants, the timescale for this action has been extended.
15c ▼	Encourage removal from ponds of Australian swamp stonecrop and Parrots feather where already established.	Agency	01/07/98	31/03/03	n/a	Floating pennywort and Australian swamp stonecrop have been recorded in a pond at Berry Pomeroy and we are endeavouring to arrange a collaborative project to eradicate them.
15d ▼	Continue surveys for invasive bankside plants.	Agency	01/07/98	31/03/03	2k	We continue to encourage the submission of records and are developing a standard recording form.
15e ▼	Carry out control on any Agency managed sites.	Agency	01/07/98	31/03/03	u/k	We are setting up a scheme to improve the recording of invasive plants on Agency managed sites to enable proper control.
15f ▼	Encourage control by riparian owners and other interested parties.	Agency	01/07/98	31/03/03	n/a	We continue to advise and encourage control of invasive species. Japanese knotweed is an increasing problem on development sites. Our staff are to receive training and develop expertise in control in terrestrial situations.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
15g ▼	Make invasive plants booklet widely available.	Agency	01/07/98	31/03/03	<1k	A new booklet is available from Cornwall County Council giving guidance on Japanese knotweed for developers and hauliers. We are encouraging the production of a national leaflet.

#### Issue 16: Lack of Information on Archaeological/Historic Value of Catchment

The Dart Catchment contains numerous sites of historical and archaeological value, many of which are located on Dartmoor. These features require continued protection if they are to survive and features as yet unidentified are at risk from new developments or changes in land use. During Agency activities we shall ensure that historic sites are protected and when we regulate the work of others we will encourage them to do so. A need has been identified for an assessment of the overall value of the catchment to provide a framework for considering actions in relation to the historic environment. Such an assessment would enable many bodies to share the same information.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
16 ■	In the absence of general assessment support the production of document(s) covering entire area to provide a better understanding of archaeological/historic value of catchment.	DCC, LA's, EH, DAS, Agency, RCHME, Uni of Exeter, NT	01/04/99	31/03/03	3k	The Historical Atlas of South West England has recently been published by the University of Exeter. Information provided in this book may be useful for assessing the value in this catchment. Otherwise, there has been no progress on this action to-date.

#### Issue 17: Recreational Use of the Catchment

There are some sites in the Dart Catchment where there are opportunities to improve facilities for recreational use and we try to do this where we can, particularly if land is in our control. There are also areas where recreation is having an adverse effect on the environment, such as the disturbance to wildlife caused by increased visitor pressure on certain areas of Dartmoor. The Agency recognises that recreation can conflict with other interests such as conservation, and we work with other organisations to resolve these problems.

The Agency has a general duty to promote the recreational use of water in England and Wales and will support sensitive and sustainable access initiatives that respect the interests of local people and the environment.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
17a ▼	Need to continue with careful visitor management to lessen impact of pressure from visitors to catchment.	DNPA, LA's	01/07/98	31/03/03	n/a	A local version of the European Charter for Sustainable Tourism has been drawn up by the Dartmoor Partnership and DNPA.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
17b ▼	Encourage disposal of sewage waste at shore based facilities to reduce impact of sewage from boats on water quality, wildlife and amenity.	Dart Harbour & Navigation Authority	01/07/98	31/03/03	n/a	See Issue 18. This action will primarily be progressed through the Dart Estuary Management Plan.
17c ●	Monitor impact of recreational activities on conservation interests and water quality in the estuary and support Estuary Management Plan initiatives.	DEEM	01/07/98	31/03/03	<1k p.a.	The potential impact of recreation on the Dart Estuary is covered in the Dart Estuary Environment Management Plan which we support. We will not report on it further in this LEAP. Action Completed.
17d ▼	Take part, as a neutral party, in any discussions over access agreements for canoeists.	Agency DNPA, BCU, Riparian Owners	01/07/98	31/03/03	<1k p.a.	No discussions have taken place over the last year regarding access for canoeists.
17e ▼	Review safety implications of the River Dart charity raft race and encourage adoption of appropriate safe practices.	Agency, Race Organisers	01/07/98	31/03/03	n/a	We continue to encourage the adoption of safe practice for all water based activities.
17f ▼	Investigate opportunities for improved public access to rivers, especially for the less able.	DNPA, Agency, LA's	01/07/98	31/03/03	<1k p.a.	We continue to seek opportunities to progress this action wherever possible.
17g ▼	Investigate opportunities for improved interpretation of water environment for visitors.	DNPA, Agency, LA's	01/07/98	31/03/03	<1k p.a.	As above
17h ▼	Investigate proposals for footpaths/cycleways in the catchment.	LA's	01/07/98	31/03/03	n/a	There are proposals by Sustrains to develop a route from Totnes to Buckfastleigh and in the through the catchment towards Ipplepen.
17i ●	Develop vehicular access and public transport links for the less able.	DCC, DNPA	01/07/98	31/03/03	n/a	This action does not form part of our activities and we can have limited input to it. However, the Dartmoor National Park Plan as part of its traffic and site management aims to improve public transport and improved facilities for the less able. This action will not be reported on in future annual reviews.
17j ■	Create angling facilities for less able at Totnes.	Agency, DAA, SWWL	01/07/98	31/03/00	u/k	There has still been no progress on this action.
17k ▼	Raise awareness amongst public of disturbance to wildlife.	DNPA, RSPB	01/07/98	31/03/03	n/a	The 'Ban the Dam' campaign which was instigated by the Dart Biodiversity Project continues to highlight the problems that visitors can unwittingly cause to wildlife.
17l	Increase public awareness of the dangers of fires on Dartmoor.	DNPA	01/07/98	31/03/03	n/a	There has been nothing specific on this action over the last year, however, DNPA

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
▼						continue to liaise with farmers and landowners to reduce the risk of uncontrolled burning.
17m ▼	Raise awareness amongst anglers of need for careful management of riverside habitat.	Agency, DNPA	01/07/98	31/03/03	<1k p.a.	We have produced a good practice guide for Freshwater Fisheries and Wildlife Conservation, which is available on request.

### Issue 18: Dart Estuary Management Plan

The purposed of the Dart Estuary Management Plan is to provide a framework against which strategies and actions can be put in to place to manage in a sustainable way the environment of the Dart Estuary. It seeks to promote the sustainable use of the Dart Estuary, balancing the demands of tourism, local industry and the natural environment. We will continue to work with other agencies and organisations to develop and implement the Dart Estuary Management Plan.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
18 ▼	Support actions in the Dart Estuary Management Plan	Agency	01/07/98	31/03/03	<1k p.a.	There is ongoing support for this through the LEAP process, attendance at forum, steering group meetings, and collaboration on a number of issues. We are also supporting the core funding of the EMP by providing LEAP work as match funding.

### Issue 19: Concerns over the use of Anti-fouling Paints on Boats

Paints based on TBT to prevent the fouling of boats by various marine organisms, such as barnacles and algae, have been in existence since the 1960s. Field and laboratory studies have shown that TBT has had an environmental impact in a number of locations around England and Wales<sup>15</sup>. On commercial species such as the Pacific Oyster *Crassostrea gigas* one of the major effects of TBT is shell thickening and reduced meat yield. In 1987 the UK Government introduced a number of controls on the sale of TBT based paints and banned their use on boats less than 25 metres in length, which covers most of the recreational market.

Alternatives to TBT based paints are mainly based on copper and zinc oxides, some of which have the herbicide Irgarol added to them, there is some concern that Irgarol may have an adverse environmental effect.

The Marine Environmental Protection Committee (MEPC), a working group set up by the International Marine Organisation (IMO) to consider the harmful effects of the use of anti-fouling paints on ships met in November 1998. All the delegates agreed that it was necessary to prohibit the use of organotin (including TBT) compounds acting as biocides by a specific date, and that the agreement should include a mechanism for other anti-fouling systems, that may warrant international action. The MEPC have made recommendations to the IMO Assembly that a mechanism be developed to ensure a global ban on the application of organotin anti-fouling compounds on ships by the 1 January 2003, and a complete ban on the presence of organotin anti-fouling on ships by 1 January 2008.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
19a ▼	Work with the Dart Harbour Authority to ensure that agitation dredging does not result in exceedence of the EQS for TBT in the estuary.	Dart Harbour & Navigation Authority, Agency	01/07/98	31/03/03	<1k p.a.	We have not been informed of any agitation dredging taking place in the estuary.
19b ●	Consider support for research into the effects of agitation dredging in areas of contaminated sediments.	Agency, MAFF, Research Institutions	01/07/98	31/03/99	u/k	A request for a National R&D study into this was rejected, therefore, this action will not be progressed.
19c ▼	Progress national research into environmental effects of alternatives to TBT.	Agency, PML, MAFF	01/07/98	31/03/00	u/k	Two reports on the environmental effects of anti-fouling biocides are now available: 1) Problems of anti-fouling agents – survey of manufacturers/chandlers and treatment sites (R&D P215); 2) Problems of anti-fouling agents – monitoring of anti-fouling paint, booster biocides and TBT in UK marinas, estuaries and coastal waters (R&D P315). A report on environmental modelling of anti-fouling biocides is due out soon.
19d ●	Establish levels of TBT and Irgarol in the Dart Estuary.	Agency	01/07/98	31/03/00	2.5k	Samples were collected on a monthly basis for TBT and Irgarol from the water surface and sediments at 6 sites within the estuary. Results for TBT show there is a continuing decrease in levels since 1986. Irgarol was detected in only one sample. There is no EQS for the substance, but it does not appear to be widely present within the estuary. This action is now complete.

#### Issue 20: Need for Integrated Management of the Coastal Zone

Devon and Cornwall have one of Europe's finest natural and historic coastlines. There are numerous bodies in this area which have formed partnerships and developed coastal initiatives over a number of years, including Estuary Management Plans, Heritage Coasts, Shoreline Management Plans, Marine Action Plans, etc. Components of LEAPs also relate to the coastal zone. The Atlantic Living Coastlines Project Sought to draw these threads together and produce a strategy for Integrated Coastal Zone Management.

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
20	Continue to support Atlantic Living Coastline Project.	DCC, CCC	01/07/98	31/03/03	<1k p.a.	The project has now concluded and the final report is now being

No.	Action	Lead By / Other	Start Date	End Date	Cost	Progress
●						produced. Work is underway to incorporate some of the findings of the project into a Coastal Strategy for use by the South West Regional Development Agency. This action has now been completed.
<b>NEW ACTION</b>						
20 a X	Seek funding for Coastal Strategy through Intereg III.	DCC, DEEM, Agency	01/07/00	01/03/03	u/k	Progress on this action will be reported in the 3rd Annual Review.

#### 4. Duties, powers and interests of the Environment Agency

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 therefore summaries 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
<p><b>Water Resources</b></p> <p>The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.</p>	<ul style="list-style-type: none"> <li>• Grant or vary water abstraction and impoundment licences on application.</li> <li>• Revoke or vary existing licences to reinstate flows or levels to surface waters or groundwater which have become depleted as a result of abstraction, and are subject to a liability for compensation.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• 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. The Agency seeks to influence planning decisions for new development by encouraging the inclusion of water conservation measures in new properties, particularly in areas where water resources are under stress, and by ensuring that planning authorities allow for the lead time for resource development.</li> </ul>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p><b>Flood Defence</b></p> <p>The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.</p>	<ul style="list-style-type: none"> <li>• 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).</li> <li>• Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991.</li> <li>• Undertake works to main rivers using permissive powers.</li> <li>• Issue flood warnings relating to main river to the public, local authorities and the police.</li> <li>• Consent mineral working within 16 m of main rivers.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Installation of surface water source control measures e.g. flood attenuation structures.</li> <li>• Supervising the maintenance of ordinary watercourses which is a local authority remit, but may impact on main rivers.</li> <li>• Installation of buffer zones which reduce flood risk and have significant environmental benefits.</li> <li>• Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>• 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 or proposed floodplain development.</li> <li>• 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.</li> </ul>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p><b>Water Quality</b></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"> <li>• Issue discharge consents to control pollution loads in controlled waters.</li> <li>• Regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharge consents.</li> <li>• Issue 'works notices' where action is required to reduce the risk of pollution.</li> <li>• Prosecute polluters and recover the costs of clean-up operations.</li> <li>• Serve prohibition notices (with or without conditions) on highway authorities to require treatment and pollution measures for highway runoff.</li> </ul>	<ul style="list-style-type: none"> <li>• The greater use of source control measures to reduce pollution by surface water runoff.</li> <li>• Prevention and education campaigns to reduce pollution incidents.</li> <li>• The provision of highway runoff control measures which is a highway authority remit.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
<p><b>Air Quality</b></p> <p>The Agency has a duty to implement Part 1 of the Environment Protection Act 1990.</p>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes.</li> </ul>	<ul style="list-style-type: none"> <li>• The vast number of smaller industrial processes which are controlled by local authorities.</li> <li>• Control over vehicular emissions and transport planning.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p><b>Radioactive Substances</b></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"> <li>• To issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public.</li> </ul>	<ul style="list-style-type: none"> <li>• The health effects of radiation.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> </ul>
<p><b>Waste Management</b></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"> <li>• Vary waste management licence conditions.</li> <li>• Suspend and revoke licences.</li> <li>• Investigate and prosecute illegal waste management operations.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• The Agency will work with waste producers, the waste management industry and local authorities to reduce the amount of waste produced, increase reuse and recycling and improve standards of disposal.</li> </ul>
<p><b>Contaminated Land</b></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"> <li>• Regulate the remediation of contaminated land designated as special sites.</li> <li>• Prevent future land contamination by means of its IPC, Water Quality and other statutory powers.</li> <li>• Report on the state of contaminated land.</li> </ul>	<ul style="list-style-type: none"> <li>• Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land.</li> </ul>	<ul style="list-style-type: none"> <li>• The Agency supports land remediation and will promote this with developers and local authorities and other stakeholders.</li> </ul>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p><b>Conservation</b></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"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• The conservation impacts of new development. These are controlled by local planning authorities.</li> <li>• 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.</li> <li>• Implementation of the UK Biodiversity Plan for which it is the contact point for twelve species and one habitat.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
<p><b>Landscape</b></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"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• The landscape impact of new development, particularly within river corridors. This is controlled by local planning authorities.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
<p><b>Archaeology</b></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"> <li>• The Agency must promote its archaeological objectives through the exercise of its water management and pollution control powers and duties.</li> </ul>	<ul style="list-style-type: none"> <li>• Direct protection or management of sites of archaeological or heritage interest. This is carried out by local planning authorities, County Archaeologists and English Heritage.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p><b>Fisheries</b></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"> <li>• Regulate fisheries by a system of licensing.</li> <li>• Make and enforce fisheries byelaws to prevent illegal fishing.</li> <li>• Promote the free passage of fish and consent fish passes.</li> <li>• Monitor fisheries and enforce measures to prevent fish entrainment in abstractions.</li> <li>• Promote its fisheries duty by means of land drainage consents, water abstraction applications and discharge applications.</li> </ul>	<ul style="list-style-type: none"> <li>• The determination of planning applications which could affect fisheries.</li> </ul>	<ul style="list-style-type: none"> <li>• Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries.</li> </ul>
<p><b>Recreation</b></p> <p>The Agency has a duty to promote rivers and water space for recreational use.</p>	<ul style="list-style-type: none"> <li>• The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management.</li> </ul>	<ul style="list-style-type: none"> <li>• Promotion of water sports. This is carried out by the Sports Council and other sports bodies.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

## 5. Appendix

### Abbreviations

AMP	Asset Management Plan
AOD	Above Ordnance Datum
BAP	Biodiversity Action Plan
BC	Butterfly Conservation
BCU	British Canoe Union
CCC	Cornwall County Council
DAA	Dart Angling Association
DAS	Devon Archaeological Society
DBWPS	Devon Birdwatching and Preservation Society
DCC	Devon County Council
DETR	Department of the Environment, Transport and the Regions
DFA	Dart Fisheries Association
DNPA	Dartmoor National Park Authority
DWT	Devon Wildlife Trust
EH	English Heritage
EMP	Estuary Management Plan
EN	English Nature
EQS	Environmental Quality Standard
ESA	Environmentally Sensitive Area
FC	Forestry Commission
FRCA	Farming and Rural Conservation Agency
IFE	Institute of Freshwater Ecology
LA's	Local Authorities
LEAP	Local Environment Agency Plan
MAFF	Ministry of Agriculture, Fisheries and Food
NT	National Trust
OFWAT	Office of Water Services
PML	Plymouth Marine Laboratory
RIGS	Regionally Important Geological Sites
RCHME	Royal Commission on Historic Monuments in England
RQO	River Quality Objective
RSPB	Royal Society of the Protection of Birds
SHDC	South Hams District Council
STW	Sewage Treatment Works
SWWL	South West Water Ltd
TBT	Trybutiltin
TC	Torbay Council
TDC	Teignbridge District Council
UV	Ultraviolet
UWWTD	Urban Waste Water Treatment Directive
WRT	Westcountry Rivers Trust

### References

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<sup>1</sup> Our Common Future, The World Commission on Environment and Development, the Brundtland Commission, 1997.

<sup>2</sup> The Nature of Devon: A Biodiversity Action Plan, 1998.

<sup>3</sup> The Nature of Dartmoor: A Biodiversity Profile, DNPA/EN, January 1997.

<sup>4</sup> Devon's Local Agenda 21 Issues Report, Devon Local Agenda 21, 1997.

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<sup>5</sup> South Devon AONB Management Plan, South Hams District Council, 1997.

<sup>6</sup> Dart Estuary Management Plan, South Hams District Council, 1998.

<sup>7</sup> European Council Directive of 8 December 1975 concerning the Quality of Bathing Water (76/160/EEC). Official Journal of the European communities No. L31/1.

<sup>8</sup> European Council Directive on Pollution Caused by the Discharge of Certain Dangerous Substances into the Aquatic Environment (80/68/EEC). Official Journal of the European Communities No. L129.

<sup>9</sup> European Council Directive concerning the Quality Required of Surface Water Intended for the Abstraction of Drinking Water (75/440/EEC).

<sup>10</sup> European Council Directive on the Quality of Freshwaters needing Protection or Improvement in order to support Fish Life (78/659/EEC). Official Journal of the European Communities No. L22/1.

<sup>11</sup> European Council Directive of 30 October 1979 on the Quality Required of Shellfish Waters (79/923/EEC). Official Journal of the European Communities No. L281.

<sup>12</sup> European Council Directive of 21 May 1991 concerning Urban Waste Water Treatment (91/271/EEC). Official Journal of the European Communities No. L135.

<sup>13</sup> Biodiversity: The UK Steering Group Report, Volume 2: Action Plans, 1995, HMSO.

<sup>14</sup> Action for Biodiversity of the South West: A series of habitat and species action plans to guide delivery, RSPB/Wildlife Trusts/South West Regional Planning Conference/English Nature/Environment Agency, June 1997.

<sup>15</sup> Waite M E, Waldock M J, Thain J E, Smith D J and Milton S M (1991). Reductions in TBT concentrations in UK estuaries following legislation in 1996 and 1987. Marine Environmental Research Vol. 32, pp 89-111.

# Map 1 - Keysites In the Dart Catchment



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