local environment agency plan

WEST CORNWALL

SECOND ANNUAL REVIEW

SEPTEMBER 2000

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Our Vision

Our vision is of this area being managed in a sustainable way, that balances the needs of all users with the needs of the environment. We look forward to a future where a healthy economy leads to:

Biodiversity and the physical habitat for wildlife being enhanced

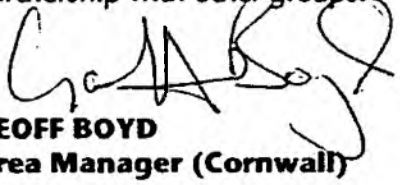
People's enjoyment and appreciation of the environment continuing to grow

Pressures from human wants being satisfied sustainably

Foreword

This is the second annual review of the West Cornwall Action Plan, which was published in January 1998. It describes the progress that has been made since.

In addition to our own actions in the plan area we welcome opportunities to work in partnership with other groups.



GEOFF BOYD
Area Manager (Cornwall)

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1. Introduction

1.1 What is the Environment Agency?

The Environment Agency is one of the largest and most powerful environmental protection agencies in Europe. Our primary aim is to protect and improve the environment throughout England and Wales and to contribute to sustainable development through the integrated management of air, land and water.

Our Role
The work of the Agency touches the lives of almost everyone within the West Cornwall area. We have a wide range of duties and powers relating to the environment. These include specific responsibilities for water resources, pollution prevention and control, flood defence, fisheries, conservation, recreation and navigation. We also act as statutory consultees on many aspects of the development planning process.

Our role is explained in more detail in appendix 2.

This Annual Review of the West Cornwall Action Plan
An important part of the Local Environment Agency Plans (LEAPs) process is to monitor the Action Plan to ensure that targets and actions are achieved and that the plan continues to address relevant and significant issues within the area. This Annual Review reports on the progress made since the publication of this LEAP and details the progress of work shown in the activity tables as well as additional actions required in light of changes in the area

In February 2000 the Agency held an Annual Review Forum in Camborne. A large number of interested parties were invited to discuss key local environmental issues. Attendees were split into smaller groups to discuss wide-ranging subject matter. The aim of these discussions was to find new issues and new solutions, providing an interactive way forward. Feedback from the groups has been included within this document.

2. Overview

2.1 Overview

The proximity of the sea gives the area much of its character and colours its way of life. Historic mining has left a legacy of old mines, adits and spoilheaps, particularly in the Camborne/Redruth area. Much of the area is rural in character, ranging from moorland to horticulture and meadowland.

West Cornwall includes some of the most distinctive, classic 'Cornish' landscapes. West Penwith is a treeless, exposed, ancient landscape, a product of the underlying granite, severe exposure to the Atlantic elements and a long agricultural history. The district is characterised by tracts of heathland, many of which are unenclosed, and small, irregularly-shaped fields bounded by Cornish hedges, many of which date from prehistoric times. Along the coast there are spectacular granite rock formations.

The more fertile lowland is given over to dairying, early vegetable production and bulb growing. Wooded hedges occur between the fields, although significant tracts of woodland are scarce. The coastline is variable, with high, heather-clad clifftops with characteristic mining remains interspersed with large sand dune systems and relatively sheltered small fishing coves and ports. Many of Cornwall's more sizeable towns occupy this area, having developed around the traditional mining, fishing and farming industries. Agricultural land accounts for over 80% of the catchment area of which the majority, approximately 70%, is grass. Dairying is the predominant farming activity, with mixed farming and rough grazing taking place on poorer land. Bulb growing and horticulture is particularly concentrated in the area.

Gwithian Towans and Penhale Dunes are the two largest sand dune systems in Cornwall. They are both noted for their wild flowers and wildlife. The whole area is of great importance to migratory bird species, as it constitutes first or last landfall. Hayle Estuary, Marazion Marsh and several coastal valleys in West Penwith are particularly important sites.

Many derelict mining sites in this area are becoming well known as important nature conservation sites as they hold populations of rare lower plants (e.g. mosses) and invertebrates. Many of these species are distinctive, as they have developed tolerance to mining contaminants.

West Cornwall is very heavily visited and tourism is an important part of the local economy. Visitors come for traditional seaside holidays and for water based activities, such as sailing and surfing. Newlyn is an important fishing port and fishing takes place all around the coast.

Much of the area has a high level of water-related recreational use, focused strongly on the coast. Activities such as surfing, snorkelling, water-skiing, diving and windsurfing take place along much of the coast. The beaches are a valuable recreational and economic asset.

Key Statistics for West Cornwall

Catchment Area	584km^2
River:	**Area drained (km^2)**
Cober	53.75
Mounts Bay Streams	153
Lands End Streams	128.5
Hayle	55.5
Red and North Coast	193.25
Population	134,000 (approx.)
Main Urban Areas	Penzance, Camborne, Redruth, Helston, St Ives
Average Annual Rainfall	1090 mm
Industries	Agriculture, horticulture, tourism, fishing, small and medium-sized enterprises (SMEs)

3. Protection through Partnership

3.1 Working with others

The Agency influences many activities affecting the environment through the Environment Act 1995 and other legislation. We must work in partnership with others to ensure that the actions in this LEAP get done and our vision for the area is realised.

Local Authorities
Local authorities are responsible for controlling land use through the planning procedure. Long term changes in land use can raise opportunities through redevelopment to tackle the issues of urban runoff, contaminated land and the renewal of river corridors. In addition, the support of community groups, individual landowners and businesses will be needed to tackle issues such as litter, pollution, private sector investment and river corridor enhancement.

Local Agenda 21 (LA21) "Think Globally - act locally"
We are in regular contact with Local Agenda 21 Officers across the county who are working on a number of sustainability projects in the areas such as waste, biodiversity, energy, health, food and transport.

Land Use Planning and Environment Planning
Land use is the single most important influence on the environment, both positively and negatively. Government planning guidance highlights both the strong relationship between land use and environmental matters and stresses the importance of communication between local planning authorities and the Agency.

The control of land use change is primarily the responsibility of Local Planning Authorities (LPAs), through implementation of the Town and Country Planning Act. Local development plans provide a framework for land use change and are the key consideration in the determination of planning applications.

The Agency has produced guidance notes in its document "Liaison with Local Planning Authorities".

OFWAT
The Agency is responsible for the environmental regulation of the water companies of England and Wales whilst OFWAT (Office of Water Services) is responsible for the financial regulation. The Agency works with the water companies in order to ensure best possible use of available resources.

OFWAT has undertaken a review of water prices in order to develop a plan of improvements required for the period 2000-2005. This plan is 'Asset Management Plan 3' (AMP 3). In May 1998, environmental improvements were proposed by the Agency to the DETR through the document A Price Worth Paying. The water companies submitted their strategic business plans in April 1999 and OFWAT made their final determination on these in November 1999.

South West Water (SWW)
SWW's Water Resource Plan, which was submitted to the Agency in spring 1999, required them to produce demand forecasts and compare them with their available resources for the next 25 years. Potential demand or resource management options,

including leakage reduction, have to be considered, and, if necessary, any resource development options which may be required to meet the forecast demand. All water companies will be required to update these in 2000.

Cornwall Waste Management Forum
The Forum, which is made up from representatives of the waste collection authorities (district councils), the waste disposal authority, waste disposal contractor and the Agency, meets regularly to exchange views, examine new technology and best practice and to discuss an integrated waste strategy for Cornwall. This group recognises the need for a co-operative approach aimed at a more sustainable waste management system.

Other Initiatives
There is a range of initiatives by various bodies, which at some level cover the area of this plan. These are both statutory and non-statutory in nature and cover a variety of topics from environmental to social and economic interests. It is important for all parties that where different interests overlap discussion occurs on those areas of common interest. In this way we can integrate action, be more efficient in our actions, avoid duplication (or conflict) and make the most of limited resources.

The Agency welcomes opportunities to work in partnership with interested bodies for the protection and enhancement of the environment.

Prevention is better than Cure
The Agency and its predecessor organisations have always been closely involved in pollution prevention and education. The Agency reaffirms its commitment to pollution prevention and working, in conjunction with industry and the public, to minimise or eliminate pollution at source. The aim is that, through the promotion of advisory literature, regular inspection and promotional talks or seminars, the Agency wishes to show it is not just a regulator.

Partnerships
As an organisation we recognise that much of our work may be best achieved through working with private industry, the public and other environmental organisations, supporting their work and possibly opening the door to other funding sources. In particular we are keen to develop projects that produce sustainable environmental improvements; through education or training, the West Cornwall Waste Minimisation Club is a good example, or through direct improvements on the ground, for example the Drift Reservoir Reedbed creation.

European Structure funding (Objective 1) could act as a catalyst for opportunities to link public and private finance to draw down further European support, and we would welcome an approach from any organisation looking to pursue projects that result in environment protection or improvement. An example of this is the recent 'Flooding Summit' where the Agency, local authorities and other organisations met to discuss ways to support the flood defence requirements of Cornwall and Devon. Key messages that came out of that summit identified changing land use and climate change as the major causes of the increased flood problems. Finding solutions to these problems in an appropriate and sustainable way must require partnerships with industry, landowners and farmers, as well as requiring the Agency and others to work with the local communities to make it happen.

4. Actions

The following tables update the progress of each issue identified in the Action Plan. The issues and activities are not presented in any order of priority.

The following points should be noted:

Our everyday work commits substantial resources to monitoring and managing the environment.

Some actions will require feasibility studies and cost-benefit appraisal of options prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be justified. The Environment Agency and the participating organisations have limited resources and powers, and some work may take longer than indicated owing to funding availability, government policy and more urgent priorities.

Should more issues become apparent during the life of this Plan, further actions will be added at succeeding Annual Reviews.

4.1 Quality of surface waters

We aim to maintain and, where appropriate, improve the quality of water for all those who use it. This is achieved by setting water quality targets for the catchment based on:

- Standards laid down in EC Directives
- River Quality Objectives (RQOs) to protect recognised uses (see Appendix 3)
- River Quality

Long term RQOs have been set for 5 stretches in the catchment. These are objectives we would like to achieve, but the actions required to achieve them are long term and are not achievable in the short term. We will use these long term RQOs as a basis for setting consents for new discharges and planning for future water quality improvements.

We 'set-aside' data where high concentrations of metals are caused by the natural geology of the catchment or historic mining activity. This allows us to protect good water quality shown by other determinands in the RE classification.

Causes of poor water quality
Our monitoring under various EC Directives and water quality objectives may identify problems where we do not know the cause. In such cases we normally undertake investigations to identify the cause.

Trevaylor Stream
Investigations into the causes of poor water quality on the Trevaylor stream have been completed and a report detailing the findings is in production.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 1: Carry out investigations to identify causes of poor water								
1.1 Investigate cause of failures on the Trevaylor Stream.	Agency	5 k	*	*				Investigation complete. Farm drainage and septic tank drainage being dealt with by field teams.
Issue 2: Investigate causes of poor biological quality								
2.1 Investigate causes of poor invertebrate biology on Tregilliowe Stream, Chyandour Brook, Holywell Stream.	Agency	U						No investigations have yet been undertaken due to lack of resources.

4.2 Effects of discharges to surface waters

The Agency has identified a number of locations where discharges are causing an adverse environmental impact. In these locations we will be actively seeking improvements to the discharges. The discharges can be from many varied sources, improvements will normally form part of industry's business plans; for example many of the discharges are sewage related improvements and we recognise the need for improvements to be prioritised through SWW's expenditure programme.

Sewage treatment improvement plans

A number of South West Water sewage discharges are known to cause or contribute to the exceedence of water quality targets. These discharges will be improved through the Water Companies investment programme.

The Water Companies' investment programme for the period 2000-2005 is known as Asset Management Plan 3 (AMP3). AMP3 has been developed along the guidelines agreed between the Environment Agency, the Department of the Environment, Transport and Regions and the water services companies and the Office of Water Services (OFWAT).

The Environment Agency has agreed with DETR which sewage discharges require improvement during AMP3. OFWAT has now completed a review of water prices which allows for this programme of environmental investment and enables the companies to make the environment improvements by 2005. Many of these schemes will be delivered before 2005.

The Government has included Porthtowan, Helston, Cot Valley (St Just) and Perranporth in the environmental obligations for South West Water. South West Water are required to include these works in their Strategic Business Plan for improvements in AMP3.

The improvements we proposed at St Buryan were viewed as a lower priority by government and we would not expect improvements to be completed in AMP3. We did not put Tregaseal (St Just) forward for improvements, as the present performance of the STW is acceptable. Flows from Cot Valley (St Just) are planned to be transferred to Tregaseal sewage treatment works that will need to be uprated at that time.

Race Farm, Treswithian
There is a requirement under UWWTD for sewage flows in the Redruth and Camborne area to be treated by the end of 2000. SWW presented proposals in 1998, to build a STW and sludge re-processing plant at the Race Farm site in Treswithian, near Camborne. The proposed STW may treat sewage from the Redruth, Portreath and Camborne area, whilst the proposed sludge re-processing plant may take sludge from the surrounding area for processing into fertiliser pellets.

A planning application for the works was made by SWW, but was rejected by the Cornwall County planning committee. The current proposal is to site the works at Kieve Mill. The Environment Agency responded to this application raising concerns over the flooding problem of Combe Stream. This issue has been resolved and subsequently the Agency has no objection to this application.

Cornwall County Council is presently discussing the application.

Reskadinnick Combined Sewage Overflow
The improvements for Reskadinnick Combined Sewage Overflows are currently linked with the proposals for the new treatment works at Race Farm, near Camborne. Improvements will not therefore occur until a STW site is secured.

Tolvaddon Combined Sewage Overflow
The performance of this CSO has been evaluated and has shown that improvements are not required.

Loe Pool
Loe Pool was designated a sensitive area (eutrophic) under the EC Urban Waste Water Treatment Directive (UWWTD) in July 1998. As a result SWW are required to install nutrient (phosphorus) reduction at the qualifying discharge, Helston STW, by the end of 2004. Loe Pool is of great conservation value and eutrophication is considered to be a major threat to the site (see Loe Pool actions).

SWW have indicated in a letter to the local MP their desire to carry out improvements to Helston by September 2001. The exact timetabling is not yet clear and is subject to OFWAT agreement.

RNAS Culdrose are willing to review their current discharge consent with the Agency over the next few months, to assess the effects of any nutrient inputs from this source into Loe pool.

Perranporth, Hayle & Camborne /Redruth High Natural Dispersion Areas
At the end of 1998 the Government decided that secondary treatment is required for all significant coastal discharges and therefore Comprehensive Studies to determine appropriate treatment are no longer required.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 3. Assess compliance with RQOs and LT RQOs and review authorisations as required								
3. 1 The Agency will seek improvements to Porthtowan, Helston, Tregaseal (St Just) and St Buryan STWs in the next round of Asset Management Plans.	Agency /SWW		*	*	*	*	*	We expect improvements to Helston and Cot Valley (St Just). UV is now online at Porthtowan, consent not yet revised. Tregaseal and St Buryan see above text.
Issue 4: Assess compliance with EC Bathing Waters Directive and carry out remedial work as required								
4.1 Implement UV treatment at Perranporth STW.	SWW			*				UV treatment has been installed at Perranporth STW and is operating satisfactorily. Secondary treatment is required in AMP3.
Issue 5: Assess compliance with EC Urban Waste Water Treatment Directive and carry out remedial work as required								
5.1 Implement improvements planned at Tolvaddon and Reskadinnick CSOs.	SWW				*	*	*	Improvements at Reskadinnick are currently included with the proposals for the new treatment works at Race Farm. Improvements at Tolvaddon are no longer required.
5.2 Implement improvements at Perranuthnoe Outfall.	SWW		*	*				Completed.
5.3 DETR to determine whether Loe Pool should be designated as a sensitive area under UWWTD following Agency recommendations.	DETR		*					Loe Pool was designated a sensitive area (eutrophic) under the UWWTD in July 1998. Action complete.
NEW ISSUE 6: Improvements to STWs in AMP3 (2000-2005)								
6.1 Boscaswell/Pendeen, Hayle, Perranporth, Porthcurno – secondary treatment to meet UWWTD.	SWW							
6.2 Botallack, Porthgwarra – installation of fine screens on the outfall under UWWTD.	SWW							

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
6.3 Cot Valley (St Just) – primary treatment under UWWTD, secondary treatment will be expected to protect a non EC identified Bathing Water.	SWW							
6.4 Helston – Phospate reduction under UWWTD. Improved secondary treatment to protect downstream water quality.	SWW							
6.5 Porthtowan – improved secondary treatment and UV disinfection to meet Bathing Waters Directive and protect downstream water quality.	SWW							

4.3 Management of Loe Pool

Loe Pool is Cornwall's largest natural lake. It has several unique features, is an important conservation and amenity site and has been designated a Site of Special Scientific Interest (SSSI). It has been affected by a number of activities in the past, such as mining, which have left a legacy of environmental damage. The restoration of the pool will be a long-term process, which will be steered by the Loe Pool Management Forum.

Loe Pool Management Forum

The Loe Pool Management Forum is made up of representatives of responsible bodies and other interested parties, including the Agency. The Forum published a Catchment Management Plan in September 1998. Many of the actions arising from the plan have been addressed and the forum still meets to discuss the progress of the actions and future work. The actions arising from the summary of measures for management are detailed below and progress will be reviewed as part of this LEAPs process.

Water Level Management Plan

Consultants (Halcrow) were commissioned to produce a water level management plan for Loe Pool, which was published in 1998. One of the key recommendations of this report was to adjust the Loe Bar outfall to allow higher water levels within the pool. Before this can be considered, collection of bathymetric data is needed to enable predictions to be made at different water levels.

The River Restoration Centre was commissioned by the National Trust in 1999 to investigate management options for the River Cober below Porthleven Road Bridge. The objective was to minimise ecological effects whilst maintaining flood defence

standards. We are currently discussing the recommendations with the National Trust.

Managing the fishery
We carried out qualitative fisheries surveys of Loe Pool in 1998 and 1999. The results of the surveys are currently being analysed.

The National Trust has recently taken over direct management of the fishery at Loe Pool and intends to collect catch data in a scientific manner to contribute to our knowledge of the fish in the Pool.

Flora Day litter management for Loe Pool and River Cober
Helston Flora Day is a very popular annual festival in Helston at the beginning of May. The influx of visitors to the town gives an obvious increase to the amount of litter, most of which is cleared away from the streets by the council. However, a considerable amount of litter (apparently as much as the total amount for the year) enters the River Cober and travels down to Low Pool, entangling itself around the plants and aquatic wildlife. This is damaging to the wildlife and is aesthetically unappealing.

This May, the Agency with the National Trust is undertaking a pilot litter collection from the Cober. A net will be placed across the river with the aim of collecting as much litter as possible before it reaches the Pool. The net will then be removed a couple of days after Flora.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 7: Implement recommendations from the Water Level Management Plan								
7.1 Adjust the spill level of tunnel through Loe Pool bar.	Agency					*	*	Collection of further data to be carried out Spring 2000 to assist with design of adjustment
Issue 8: Support Loe Pool Management Forum								
8.1 Produce catchment management plan for Loe Pool by September 1998 and carry out appropriate actions identified.	Loe Pool Forum	20k	*	*	*	*	*	The Catchment Management Plan was published in September 1998. We will report progress on the actions in this Annual Review
Issue 9: Support and report on actions identified through Loe Pool CMP								
9.1 Negotiate Countryside Stewardship Scheme Target Area status.	MAFF, EN, CWT	U		*				MAFF accepted Target Area status. 5 applications were accepted in 1999.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
9.2 Encourage farmers to enter land into CSS.	FWAG, NT			*	*	*	*	Several organisations are carrying out farm visits to promote CSS. MAFF has doubled CSS funding. We would welcome enquiries from any interested landowners in the catchment.
9.3 UWWTD monitoring and Helston STW (see Action 1.1) Following completion of 3 year survey into nutrient loadings, assess loadings from sources including Culdrose.	Agency							Survey is ongoing until 2000 UWWTD monitoring is taking place throughout the catchment. If monitoring shows anything we will look to investigate further. At present no significant evidence of the cause of nutrient problems. Monitoring will recommence in 12 months prior to commissioning.
9.4 Evaluate nutrient inputs from Coronation Lake, septic tanks, fish farms and take actions where appropriate.	Agency		*	*	*	*	*	Leaflets on effective management of septic tanks are available from Agency or National Trust. Partners in forum are looking to carry out surveys in various locations around Loe Pool.
9.5 R & D into mesocosm following completion of works at Helston under UWWTD.	NT, EN, Agency							Will assess benefits to speed up restoration of Loe Pool after installation of improvements to Helston STW.
9.6 Investigate sources of sediment.	Cornwall College	U						A project looking into identifying sediment sources and the levels of loss is currently being put together by Cornwall College and Truro College.
9.7 Survey shoreline and marginal flora.	NT				*			Carried out Autumn 1999

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
9.8 Develop River Cober floodplain scheme to reduce sediment input and to enhance quality of floodplain habitats through WLMP review	Agency, EN, NT				*			Initial assessment has been carried out by River Restoration Centre.
9.9 Monitor hydrology of willow carr to evaluate effects of implementation of Water Level Management Plan.	NT			*	*			Some water table measurements have been taken and will be continued.
9.10 Management of public use. Encourage public awareness of nature conservation value of lower reaches of River Cober.	NT				*			Agency and English Nature met with Helston Town Council in September 1999 to discuss creation of a Nature Reserve in the lower Cober valley. The Town Council has discussed with Kerrier to seek their involvement
9.11 Minimise public use of lower River Cober paths to reduce disturbance to wetland flora and fauna.	NT				*			Public access matters will be addressed as part of this project.
9.12 Negotiate enforcement of Loe Pool angling regulations including submission of catch records.	NT				*			Implemented.
9.13 Negotiate production of NT whole farm plans. Promote project nationally to ensure best practice is received and to share experience.	NT/ FWAG				*			Detailed, field by field, advice on sediment run off risk and potential mitigation measures has been produced for all National trust tenant farms. It is hoped that the principles will be applied to other farms in the catchment, and that some of the measures can be incorporated into the Countryside Stewardship Schemes in the Cober catchment.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
9.14 Investigate removal of Water Net from Loe Pool.								Funding unlikely at present.
9.15 Reduce pollution from street drainage in Helston Education campaign in Helston on pollution from street drainage and kennels.	Kerrier DC							Agency will support any initiatives with advice and leaflets as necessary.
9.16 Improve street cleaning and maintenance of drains.	Kerrier DC							Discussions have been taking place between Kerrier and Loe Pool Forum.
9.17 Assess feasibility of screening Helston road runoff.								
Issue 10: Fisheries investigation of Loe Pool								
10.1 Carry out qualitative fisheries surveys in Loe Pool.	Agency	U		*	*			Report has been released on 1998 data. 1999 data still being processed.
10.2 Investigate means of removing perch from pool to conserve trout population.	NT, Agency				*			Survey showed an imbalance in fish populations. There is an overabundance of perch. A number of actions to correct this are recommended within the report.

4.4 Hayle Estuary

Hayle and the adjacent coastal habitat are heavily protected with conservation and historic designations as well as having as yet unrealised potential for redevelopment.

Sediments in the Hayle Estuary are contaminated by centuries of industrial activities including mining and power generation. The top layers of silt are likely to be less heavily contaminated by metals and other toxic substances than the layers further down. Before any redevelopment could take place the Agency would require an environmental assessment over the full suite of contaminants and over the full depth of works. Any work would carry a strong potential for contamination of the estuary.

Wildlife
The Hayle Estuary is the most south-westerly estuary in Britain and lies on a major bird migration route. The Estuary provides feeding and roosting habitats for a wide variety of bird species including wildfowl and wading birds such as the Teal, Ringed Plover, Curlew and Dunlin. In recent years more than 242 bird species have been recorded in the estuary, including 90 wintering bird species with total numbers of over 18,000

The Dunes exhibit a rich and diverse flora, plants of particular note that can be found in the area include Portland Spurge, Bulbous Meadow Grass and Mountain St. John's Wort which are nationally scarce.

The unique nature of the wildlife in the estuary includes the rare Gilthead bream, which has been recorded in Carnsew pool.

Hayle Harbour
Plans have been presented to the Agency and a planning application submitted to Penwith DC for the proposed regeneration of Hayle Harbour, providing marinas, hotels and leisure facilities. In addition to its unique conservation value, Hayle Harbour and Estuary has recognised potential for re-development. The opportunity exists to write a planning brief in a partnership composed of the Local Planning Authority, the Agency and other bodies, which would supplement the existing local plan. This guidance would provide a framework for potential developers to use in their own planning process, so that the conservation and heritage designation and issues such as contaminated land can be considered at an early stage. The Harbour by its very nature and previous uses is known to be a contaminated site.

The recently proposed area for development falls within the Hayle Harbour and Carrack Gladden Site of Special Scientific Interest.

Historic audit
The Agency has commissioned a desk based historic audit of the Hayle Estuary, which has recently been published. Recommendations of the report and actions arising are currently being considered.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 11: Carry out Historic Audit of Hayle Estuary and appropriate actions arising from it								
11.1 Carry out Historic Audit of Hayle Estuary and appropriate actions arising from it.	Agency	1.2k	*					The audit has been completed

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 12: Carry out assessment of fish populations within Carnsew Pool								
12.1 Undertake an assessment of fish populations within Carnsew Pool.	Agency	U						Any significant development in Hayle Harbour which may affect Carnsew Pool will require an assessment of fish population status by developer.

4.5 Protection of habitats and wildlife

Conservation in its broadest sense should be an integral part of all activities, and many of the actions within this plan promote sustainability, or seek to make up for serious losses or impacts on the environment. However, additional, specific conservation actions are required at certain sites or for certain species

Water level management
For wetland sites in England and Wales, formal strategies are being produced in order to guide management with particular reference to the management of water tables. These are known as Water Level Management Plans and they seek to balance the needs of conservation, flood defence and agriculture.

Following liaison between the Agency, English Nature and Cornwall Wildlife Trust a water level management statement was published in 1998 which recommended maintaining the status quo at Loggans Moor. A water level management plan for Loe Pool was published in 1998 (see 2.1).

Marazion Marsh
Marazion Marsh SSSI contains the largest reedbed in Cornwall, as well as other wet habitats such as grazing marsh and willow carr. The area is a reserve, managed by the Royal Society for the Protection of Birds. It is an important site for bitterns. We are working with the RSPB over a number of issues in the marsh. Recently the Agency funded the creation of some open water habitats.

We will be carrying out a qualitative assessment of the fish species present within Marazion Marsh.

Cornwall Biodiversity Action Plan
Following the publication of the Cornwall Biodiversity action plan in July 1998, the Agency, as one of the lead partners in this initiative, has agreed to undertake a large number of actions covering habitats and species in Cornwall. The list of actions for which the Agency is a lead organisation or one of the leading partners, specific to this catchment, can be found in Appendix 1. The full list of actions for all the partners can be found in the Cornwall Biodiversity action plan.

Wetland creation at Drift Reservoir
Drift Reservoir is an important wetland site but has very little tall vegetation where bitterns and other birds can shelter. We have funded the creation of 1600 square metres of reedbed at Drift Reservoir.

Japanese Knotweed
The Japanese Knotweed Control Forum for Cornwall continues to meet on a regular basis. Research is continuing with regards to good practice for the use of herbicides. The web site has generated a lot of interest, and has stimulated knotweed control programmes throughout the UK. Our understanding of knotweed control and management is continually changing, and therefore the web site provides an ideal medium for providing information.

The Geographical Information System survey, sponsored by the Agency has provided a good understanding of knotweed distribution throughout Cornwall. Maps are now available from the Planning Department at Cornwall County Council. There are at least 2800 known sites of knotweed in Cornwall. Continued recording is greatly welcomed.

Bait-digging
Bait digging occurs on much of the foreshore in the plan area. However on part of the Hayle estuary an existing byelaw prohibits bait digging. A bait digging and bait gathering review will be undertaken by the Agency.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 13: Implement best practice to manage water levels								
13.1 Manage water levels at Marazion Marsh for the needs of wildlife.	RSPB							The management plan is being implemented by RSPB.
Issue 14: Fisheries survey of Marazion Marsh								
14.1 Qualitative survey of eels and other fish species in Marazion Marsh.	Agency	U			*			Dependent upon resources being available – but put in provisional programme for 2000/01.
14.2 Analyse eel tissue samples.								Tissue analysis will be undertaken if funding is made available from external collaborative partners.
Issue 15: Support Cornwall Biodiversity Initiative and Biodiversity Action Plans for Key species and habitats								
15.1 Support Cornwall Biodiversity Initiative and Biodiversity Action Plans for Key species and habitats.	Agency							Please see Appendix 1.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 16: Work with partnership bodies and landowners to enhance natural environment								
16.1 Undertake research into wet woodland to enable appropriate management - Cornwall wide project, although the Willow Carr at Loe Pool is receiving specific attention.	Agency /Others	10 K						This is one of the key areas addressed by the Cornwall Biodiversity initiative.
16.2 Improve information on pond creation, through the Agency 'Pond Form', surveys, reviews, best practice.	Agency / FWAG / CWT	2 K						A trial form was used in 1999 in Cornwall, if successful this will form the basis for a pond information booklet for regional and National use.
Issue 17: Assess effects of bait-digging								
17.1 Review current practices. Map current areas of digging and quantify crop Research effects.	CWT	U			*			We and other interested parties will carry forward any appropriate recommendations when the review is complete.

4.6 Fisheries Management

Construction of instream structures (croys)

Fishery managers and angling clubs often seek to improve angling amenity in rivers by creating deeper pools for salmon and sea trout. This is often by the placing of short lines of rocks in the channel. These rocks are known as croys or deflectors. Although in some locations the installation of croys is acceptable, in other stretches sensitive shallow areas of river, used by young salmon and sea trout can be destroyed.

A joint protocol of best practice for the positioning and construction of croys is currently being developed in collaboration with South West Rivers Association. This will help to ensure a consistent and efficient approach in dealing with applications.

Fisheries Enforcement

Salmon and sea trout are protected by extensive fisheries legislation mainly contained within the Salmon Act 1986, Salmon & Freshwater Fisheries Act 1975 and Regional and National Fisheries Byelaws. These laws were created to protect freshwater fish from uncontrolled exploitation and the Agency enforces the legislation through its Fisheries Enforcement Officers.

Fisheries enforcement activity occurs throughout West Cornwall. Of particular importance are the enforcement patrols and observations that take place using fast patrol boats in St Ives Bay, Mounts Bay and the surrounding coastlines. Sea trout enter the river systems from the sea and may get intercepted by illegal nets set in the estuary or on the coast. Fisheries patrols seize these nets and will prosecute those persons setting them. It is vital for the low numbers of salmon and sea trout to gain unrestricted access to the rivers to spawn such that they can maximise population growth to become self-sustaining. Once in freshwater, fish can also be removed by poachers and those persons fishing without rod licences. Random enforcement foot patrols in this area take place in order to detect and prosecute these offenders.

On stillwater fisheries in the area, coarse fishing is an increasingly popular sport. Anglers participating in this branch of the sport require an Environment Agency national rod licence to ensure that they are fishing legally. Fisheries Enforcement Officers undertake regular patrols of stillwater fisheries to check anglers for rod licences as well as attending site visits to provide advice and assistance on fishery management and development projects. Because the income from rod licences helps the Agency to provide a fisheries service, any person found fishing without a licence is prosecuted.

Bass size limit
Currently there is a difference in the size limit for bass caught within and outside the Hayle estuary. Within the estuary the minimum landing size is 36cm. Outside the estuary the size is 37.5cm. To resolve this anomaly we will continue to seek views from MAFF.

An independent review of fisheries policy and legislation has just been published by MAFF. Copies are available from MAFF, Room 308, Nobel House, London.

Herring netting
Traditional netting for herring takes place within St Ives Bay. In Penzance Bay this is illegal and exemption permits would be needed to regularise the existing situation. We will look at this issue in consultation with the relevant parties if and when required.

Decline in fish numbers
Results from fishery surveys have indicated a decline in fish numbers on the River Cober at Vellanewson, Penberth stream, Boswarna Stream and Lamorna Stream. When resources allow we intend to carry out investigations at these sites to determine the cause of the decline in fish numbers. These investigations will be dependent upon the availability of resources.

Obstructions
Trash dams on rivers occur when trees and large branches fall into a river and act as barriers to other sticks and leaves which come downstream. Over a period of time, small dams can form which can cause problems for salmon and sea trout trying to get upstream to spawn in the headwaters of the river. In addition, trash dams can cause scouring of the river bed and bank damage, or allow silt and mud to build up behind the dam, covering clean gravels in which fish need to lay eggs.

Within the plan area there are several obstructions that are considered to prevent the access of migratory fish. Surveys of these sites and assessment of the economic feasibility of taking actions to remedy the access problem now forms part of the

Fisheries Habitats Improvement plan.
To ensure that fish passage along a river is possible at critical periods, the Agency seek to clear dams which are causing or are likely to cause problems to migrating fish. It is essential that trash dams are inspected before removal because some smaller collections of wood and sticks can be beneficial to fish fry and species like bullheads that may use the submerged branches for cover. Smaller accumulations of debris near the banks may be left intact.

Within the plan area there are several obstructions that are considered to prevent the access of migratory fish. Surveys of these sites and assessment of the economic feasibility of taking actions to remedy the access problem now forms part of the Fisheries Habitats Improvement plan.

Introduced and escaped fish
In recent years many stillwater fisheries have been developed. These fisheries are usually stocked with coarse fish, the majority of which are not native to the rivers and streams of Cornwall. Some of the stillwater fisheries have overflows and outlets which flow directly to rivers and the Agency is concerned that it might be possible that non-native fish can escape and enter river systems where they could pose threats to native fish.

All persons wishing to stock coarse fish to stillwaters, ponds and lakes are required by law to apply to the Agency for permission before fish are stocked. The Agency will evaluate all applications and in many cases may visit a site before consent is given. In some cases the Agency may ask for the installation of screens to prevent fish escaping to rivers. Routine fisheries surveys on rivers will monitor for the presence and distribution of non-native fish.

Improving freshwater fisheries
Natural fisheries are important natural assets and are also of commercial value for rod fisheries. Fish are also good indicators of the overall health of our rivers. Several rivers support self-sustaining populations of fish species given special protection by the European Union Species and Habitats Directive 1992 such as salmon, bullhead and brook lamprey. There needs to be protection and promotion of these fish species and their habitat.

Knowledge of fish populations
There are several watercourses in the plan area where little or no data on fish populations is available. This limits our ability to set objectives to improve fisheries. We have carried out investigation on some of these rivers and intend to carry out investigative work to ascertain appropriate actions. The age of salmonids can be determined by scale readings. We would encourage anglers to send in scales and catch details of all rod caught fish to assist us in gathering information on stocks.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 18: Create byelaw to increase minimum bass size limit								
18.1 Create byelaw to increase minimum bass size limit.	MAFF	U						This action has not been progressed due to a lack of resources and the relatively low priority of the action compared with other demands on staff time.
Issue 19: Legalise appropriate ebb netting practises								
19.1 Need to identify netsmen and investigate the legal situation.	Agency	2 K						We have identified three ebb netters and will attempt to contact them to discuss the activity.
Issue 20: Prevent introduction of non-native fish species into freshwater and the marine environment								
20.1 Update database on distribution of non-native species.	Agency	5 K		*				Information on stillwater species and non-indigenous species like Wels Catfish is still being collected from fisheries. This information will be added to the database in 2000/01.
20.2 Publicise regulations and hazards of fish disease.	Agency	Core						The Agency actively promotes the 'Buyer Beware' policy for fish introductions and will seek to prosecute those that introduce fish illegally.
Issue 21: Assess areas of potential improvement and carry out appropriate works								
21.1 Investigate cause of decline in fish numbers on: River Cober at Vellanewson Boswarna Stream, Lamorna Stream, Penberth Stream.	Agency	U						Investigation work will commence when resources allow.
21.2 Identify areas for potential improvements.	Agency	U						This action forms part of the habitats improvement plan which is currently ongoing.
21.3 Survey obstructions to assess economically feasible actions.	Agency	U						This action forms part of a countywide habitats improvement plan which is currently ongoing.

4.7 Farming

The area is widely used for the production of early potatoes, brassicas and daffodils. In many instances the most suitable land is steeply sloping and subject to erosion during periods of wet weather. This can result in the blanketing of river gravels with mud making them unsuitable for fish spawning. In addition the erosion can cause the release of herbicides and pesticides from the land to the water environment.

There is a declining trend in the numbers and severity of pollution incidents relating to farming. This has probably resulted from the extensive, proactive pollution prevention work carried out in the past, and the subsequent positive response from the farming community. However, farming, along with other sources, continues to have an impact on water quality within the catchment through diffuse pollution.

Effects of land use on fish

We are concerned that salmon and sea trout stocks are being limited by siltation of the riverbed. The impacts of siltation include smothering of eggs in spawning gravel beds, a reduction in physical habitat for juvenile fish, and a reduction in food availability. Silt can come from many sources including agricultural and forestry activities which cause bank and bed erosion and runoff. Other sources include mineral extraction, quarrying and highway drainage.

To assess the relative levels of siltation within spawning gravels, a national Agency study is deploying silt traps in a few key locations. We have obtained a large number of additional traps and intend to assess all significant salmonid rivers in Cornwall. The assessment may be compromised during the winter of 1999/2000 due to unusually high river flows but we seek to continue when river levels return to a normal flow.

In parallel to assessing the extent of the problem, we are seeking ways to reduce sediments from entering the watercourse. We will look to extend recent successful collaborative fencing and land management schemes to prevent erosion of riverbanks and to reduce run-off from the land. We particularly wish to promote good management of moorland/heath areas to prevent damage from overgrazing and ditching work, and to encourage landowners to involve the Agency in discussing any proposed works.

We will hold discussions with potential partners with a view to carrying out appropriate land management and fencing work where appropriate. The Soil Code for the protection of soil is available from MAFF and the Agency would promote the use of practices within this document in preventing such sedimentation from runoff.

Irrigation

Seasonal spray irrigation of crops can lead to a heavy demand on water resources. This is usually met by water stored in irrigation reservoirs and flooded mine systems. We will promote the use of off-stream winter filled storage systems for irrigation reservoirs, particularly where sited in places where they can benefit the natural wildlife.

We ensure through our licensing procedures that the development of irrigation ponds has the minimum impact on the ecology and landscape of the area. Consent is required to cover construction of new seepage fed excavations for irrigation use.

Waste spreading to land
The practice of spreading certain controlled wastes to land has the potential to cause pollution of controlled waters and possible loss of conservation value if not managed appropriately.

Certain controlled wastes may be spread on land where an agricultural benefit or ecological improvement can be demonstrated. These wastes can be spread under exemption from waste management licensing provided that the applicant can demonstrate that the activity will not cause harm to the environment or present: -

1. Risk to water, air, soil, plants or animals; or
2. Cause nuisance through noise or odour; or
3. Adversely affect the countryside or places of special interest.

The Agency is currently reviewing its internal guidance and the Government is consulting on legislative change on the processing of land spreading applications to ensure that potential pollution effects or habitat loss do not occur.

The Groundwater Regulations
The Groundwater Regulations became fully adopted on 1 April 1999 and are intended to protect the quality of groundwater by:

- Preventing the discharge to groundwater of substances prescribed in List I (see Appendix 3, EC Dangerous Substances Directive)
- Limiting the discharges to groundwater of substances prescribed in List II

The regulation requires written authorisation from the Agency to tip for the purposes of disposal of any listed substance.

This is particularly relevant for sheep farming as the disposal of sheep dip will require an authorisation. The implementation of the regulations has been widely advertised and the Agency would advise potential applicants to make contact at the earliest possible opportunity. The Agency will give advice and guidance to any one who may be affected.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 22: Continue to monitor the effects of pesticides and take appropriate action where necessary								
22.1 Carry out additional pesticide monitoring in order to keep abreast of the introduction of any new pesticides being used.	Agency	U	*					Due to resource implications this field work stopped in March 1999. There is now a small amount of monitoring to complete.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
22.2 Advise on land management to prevent soil loss and pesticide runoff.	DC MAFF/FWAG	U	*					This issue is being dealt with as part of routine work.
Issue 23: Encourage protection of semi-natural habitat from waste disposal activities								
23.1 Encourage protection of semi-natural habitat from waste disposal activities.	Agency /Landowners							Action on this issue will follow publication of guidelines.
23.2 Review of waste spreading to land operations.	MAFF/Landowners/ Agency				*			This issue needs reviewing in a comprehensive and integrated way to ensure that the activity does not cause undue impact. The review will involve all interested parties.
Issue 24: Reducing sediments entering water courses								
24.1 Promote good practice through day to day work.	Agency /FWAG	U			*	*	*	Ongoing as part of routine work.
24.2 Promotion of the Soil Code, particularly in conjunction with changes of land use and crop patterns.	MAFF/Agency	U				*	*	Ongoing as part of routine work.
24.3 Following the completion of a project by South Wessex Area into controlling silt, and research into the effects of silt by the Agency's salmon centre, we will undertake recommendations where feasible.	Agency					*	*	This project has been incorporated into a National project. As part of this silt traps have been placed in.

4.8 Metalliferous mining

Historically, the catchment was one of the most important and extensively mined areas in the South West, principally for tin and copper. Underground workings have altered groundwater flows and intercepted surface water drainage, discharging via mine workings rather than flowing back into rivers and streams for hundreds of years. Historically water quality has been affected by mine drainage.

South Crofty
In August 1997 South Crofty Plc informed the Agency of their intention to close the South Crofty tin mine during 1998. This allowed the Agency to consider the environmental effects of the closure and as a result a report on the effects of the closure was prepared. The report concluded that once pumping ceased, the water level in the mine would take approximately 3 to 5 years to overflow dependant on rainfall.

There will not be a repeat of the 'Wheal Jane scenario', where a rapid rise in water level within the mine caused an overflow of highly contaminated minewater within months of closure. The Agency is identifying the most appropriate environmental solution to ensure no environmental impact in the Red River. The geology of South Crofty is totally different from that at Wheal Jane. Wheal Jane has high iron pyrite content - the cause of acid minewater creation and hence the ability of Wheal Jane water to dissolve and carry metals. South Crofty has a very low pyrite content, the water also has almost a neutral pH content.

Archaeological remains
Many historic mining sites are of national and international value in terms of their industrial heritage and some have national biological value particularly bryophytes. The central mining district around Camborne and Redruth is amongst sites currently being submitted as a World Heritage site for Cornish mining.

The Derelict Land Reclamation Strategy for Cornwall was launched by English Partnerships. Amongst the actions included in the strategy, is the preparation of site management plans for conservation management of former mine sites and audits of archaeological remains.

Widespread contamination of ground has occurred from the former operation of metalliferous mine workings in the area. During any work on spoil heaps or contaminated sites any soil containing metalliferous mining waste exported off site must be handled in an appropriate manner. We advise on suitable methods on a site-specific basis as part of our core work. Cornwall County Council, in its draft waste local plan, encourages disposal based on our advice.

Red River (Redruth)
The Red River has been the centre of mining processes for hundreds of years and much metalliferous waste has accumulated in the silts and banks. Proposals that involve disturbing this ground can cause further environmental impacts.

Management of the Red River valley needs to balance the needs of the variety of different interests, including archaeology, conservation, recreation and flood defence. Kerrier District Council is currently leading a project to investigate the feasibility of enhancing part of the flood plain. Any work in the flood plain must comply with flood plain policy.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 25: Work with all involved to ensure that any closure of South Crofty has minimum adverse environmental effects								
25.1 Review quality, quantity and location of minewater overflow predictions using recent monitoring data.	Agency /CCC/ Kerrier DC	U	*	*	*	*	*	A report has been published 'South Crofty Strategic Closure study' Reviews are ongoing.
25.2 Review contingency plan.	Agency	U	*	*	*	*	*	The review has been completed.
2.3 Instigate contingency plan with other bodies involved.	Agency /CCC/ Kerrier DC							This work is ongoing.
NEW ACTION: 25.4 Monitor rising water levels.	Agency				*	*	*	Monitoring data is being used to review model prediction and update the Contingency Plan.
Issue 26: Promotion of methods to prevent or minimise waste from contaminated ground								
26.1 Promote policy to be included in forthcoming Cornwall Waste Local Plan.	Agency /CCC	U						In May 2000 Section 57 of The Environment Act will be implemented, whereby the Environment Agency and the Local Authorities will, identify and compile a register of contaminated sites. The Agency and the Local Authorities will then have the statutory powers to bring about the remediation of contaminated land.
26.2 Give advice on Best Practice options to treat metalliferous waste arisings if necessary.	Agency							The Agency promotes best practice for the development of metalliferous areas as and when such development arises.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 27: Long term management of Red River Valley								
27.1 Produce guidelines for the management of the Red River floodplain.	Kerrier DC		*	*				A management plan has been prepared as part of the Cornwall Biodiversity initiative. Action complete.
27.2 Partnership project to manage the Red River Valley.	Kerrier/ CWT/ Agency							Kerrier is leading a partnership project to manage the Red River valley and is considering designating it as a local nature reserve.

Contaminated Land

Section 57 of the Environment Act 1995 enacts Part IIA of the Environmental Protection Act (1990) came into force on 1st April 2000. This allows for the identification of land that poses a threat of significant harm to human health or the environment, or of pollution of controlled waters, under existing conditions. It also provides for the enforcing authority (the local authority or the Agency) to ensure that appropriate and cost-effective remediation is carried out to deal with the problem, either voluntarily or by way of a remediation notice. It therefore provides a mechanism to deal with those sites which are causing concern now because of the presence of contaminants, and which would not otherwise be dealt with through other pollution control legislation, or under the planning system. Contaminated sites, which are to be redeveloped, continue to be dealt with through planning and development controls.

The legislation comprises statutory guidance and regulations, which together provide significant detail on the enforcement of the regime, including a statutory definition of contaminated land, guidance on how to interpret this (particularly for threats to human health), and guidance on what may be required by way of remediation.

Local Authorities have the sole responsibility for the identification of land that meets the statutory definition, although the Agency has a duty to provide information and a power to provide advice in connection with pollution of controlled waters. The Agency's primary role is as enforcing authority for those sites categorised by the regulations as "Special Sites". These are currently categories of land which, provided the statutory definition is met, are considered by Government most appropriately regulated by the Agency. This could be because we already regulate those sites through other pollution control legislation (e.g. nuclear sites), or because our historical background means that we have the most appropriate experience (e.g. sites with significant water pollution), or for other particular reasons (such as MoD land).

Responsibilities under Part IIA Environmental Protection Act 1990	
Local Authorities:	**Environment Agency:**
• Inspect their area to identify contaminated land. • Consult the Agency on pollution of controlled waters. • Ensure remediation of land identified as contaminated land. • Transfer "special sites" to the Agency. • Maintain remediation registers	• Provide information to local authorities on contaminated land. • Ensure remediation of "special sites" • Maintain a register of special sites' remediation. • Prepare a national report on the state of contaminated land. • Provide advice on quality of controlled waters.

4.10 Sea level rise

Flood defence schemes

Flood defence schemes are designed to accommodate future sea level rises. Information regarding the predicted rise in sea level is produced by the Intergovernmental Panel for Climate Change. The net sea level rise estimates are used to establish the anticipated effects over the life of a flood defence scheme. The approach is to design the works so that as sea level rise occurs the defences can be raised without having to rebuild the whole structure.

Raising the level of defences above that necessary today can only be justified where evidence of actual sea level rise supports the need. The current allowances for the South West Region of the Agency are a rise of 5mm/year until the year 2030 and 7.5mm/year thereafter. A further potential effect of global warming is that of increased storminess, which could lead to increased wave action and annual rainfall, resulting in greater flood risk. We have designed our flood defence schemes to allow for a rise in sea levels.

Shoreline Management Plans

A Shoreline Management Plan sets out sustainable coastal defence policies and objectives for the future management of the coast.

The Agency is a member of the coastal group that has prepared the area's Shoreline Management plans. This group comprises the County Council and all maritime local authorities. The two plans covering the area are Lizard to Lands End and North Cornwall Coast. The local authorities and the Flood Defence Committee have now adopted these. SMPs are reviewed every 5 years based on studies undertaken in the interim.

We have designed our flood defence schemes to allow for a rise in sea levels. An annual review of the condition of existing sea defences is undertaken.

Appraisal of strategic coastal defence options has lead to the preferred options for sections of the coast in the North Cornwall Coast SMP shown in the table below. The sections, referred to as management units, are stretches with coherent characteristics in terms of both natural coastal processes and land use. The preferred options are currently being consulted on.

Management Unit	Preferred option
Sennen Cove and Whitesand Bay	Hold existing defence line along the developed frontage to protect assets. Carry out no coastal defence except for safety measures elsewhere in Whitesand Bay to maintain the sand supply for Sennen Cove beach.
Porthmeor Covering the main tourist beach in St Ives	Hold the existing line defence line along main developed frontage of Porthmeor to maintain facilities.
St Ives Covering St Ives from 'The Island' to Pedn Olva.	Hold the existing defence line throughout this developed frontage to protect the commercial centre of the town.
Carbis Bay From Pend Olva to Porth Kidney Sands.	Hold the existing line for defended frontages to maintain existing tourist assets and infrastructure. Carry out no coastal defence except for safety measures along the undefended developed coastal slope in the short term. Cliff stability monitoring to assess the acceptability of localised intervention.
Hayle Estuary Shoreline of the estuary including sand dunes on either side of its mouth and the banks of the estuary upstream to Griggs Quay.	Hold the line on the sand dunes either side of the estuary mouth to prevent natural roll back and loss of various assets. Also hold the existing defence line within the estuary to protect harbour and other developments.
Hayle and Gwithian Towans Covers the continuous beach between mouth of the Hayle Estuary and the Godrevy headland	Carry out no coastal defence except for safety measures along cliff frontages due to low erosion risk, also short term at Godrevy. Dune management between Common and Upton Towans to maintain important habitats and prevent dune roll-back onto holiday camps. Hold the line strategy is recommended to protect the extraction site.
Portreath Includes developed frontage around Portreath Beach	Hold the existing defence line to maintain harbour structures, protection of properties and highway.
Porthtowan	Hold existing defence line along the defended frontage including sand dune management in the centre of the cove. Carry out no coastal defence except for safety measures on cliffs to the south to maintain habitat integrity.
Trevaunance Cove The cove forms a coastal extension of the village of St Agnes	Carry out no coastal defence except for safety measures short term on cliffs on west side, with cliff monitoring to determine long term trend. No intervention on cliffs to the east as they provide a key source of beach material.

Sea Defence Survey

The Agency updates the Sea Defence Survey annually. The adequacy and condition of defences is considered as are future improvement works. The Agency liaises with maritime local authorities over their plans for defences for which they have responsibility. Allowances for sea level rise are considered on an individual basis for each site.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 28: Prepare Shoreline Management Plans (SMP)								
28.1 Prepare Shoreline Management plans (SMP) lead organisation- Kerrier District Council.	CCC, LPAs, Agency	38 K	*	*	*			The final drafts for the SMPs were consulted on in 1999. Action complete.

4.01 Flood defence

River flows vary widely and are affected by the weather, geology and land use. We manage flood risk from rivers and the sea using Flood Defence and Land Drainage powers. We manage flood defences and land drainage to balance the needs of all river users with the needs of the environment. Our duties and powers with regard to flood defence are described in Appendix 2.

Our statutory flood defence committees make decisions on flood defence. All rivers are classified as either 'main rivers' or 'ordinary watercourses' (sometimes referred to as 'non-main rivers'). We control work (through consents) and supervise flood defence matters on all watercourses, but have special powers to carry out work on main rivers including both new and capital improvement schemes and maintenance.

Funding for capital improvement schemes is currently under pressure. Central government grant aid is now distributed according to national rather than regional priority. Alternative funding streams are being investigated for flood defence works. When we design new flood defence work we fully consult conservation bodies. All options are explored when designing new schemes including flood storage in wetlands if possible.

Leaflets are available showing the main rivers and coasts where a flood warning service is provided.

Bye Report/Easter 98 Flood Actions and Agriculture Select Committee
The severe flooding which affected large areas of central and eastern England and parts of Wales over the Easter weekend 1998 called for the Agency to take urgent action and to learn the wider lessons from this extreme event.

To help achieve this the Agency called for an independent investigation that would lay out plainly the facts about the floods and the Agency's handling of them. Peter Bye and his technical advisor Dr Michael Horner carried out this investigation, the report is known as the Bye Report. In a parliamentary Statement on 20th October 1998 on the Bye Report by the Minister, Elliot Morley, the Agency was given clear targets to achieve a seamless and integrated service of flood forecasting, warning and response by April 2000. To achieve this the Agency has completed a thorough review of the whole system during 1999 to ensure it is focused to deliver the required service, that management arrangements make this possible and that there are clear lines of accountability and responsibility.

The Agency, having considered the Bye Report, taken due regard of the Minister's statement, compared the needs of the Reports with the findings of the Agriculture Select Committee on Flood and Coastal Defence 30th July 1998 and comments from MAFF, has been progressing a comprehensive action plan.

The plan includes the following:

- Review of flood warning dissemination plans - **completed**
- Review current supervisory duties and develop a working approach to their use - **ongoing**
- Review and publish consistent flood risk maps - **completed September 1999**
- Review emergency response arrangements with local authorities and carry out joint exercises using new arrangements. This must include clear understanding of the roles of all organisations involved - **ongoing**

- Introduce improvements in the Agency network of telemetered river flow monitoring - **ongoing**
- Carry out a complete visual survey of all flood defences including main river, ordinary watercourses, tidal and sea defences and in future carry out regular updates - **completed baseline survey and will carry out updates in future**
- Revise the Agency's National Flood Warning Strategy and establish a national flood warning centre - **strategy completed and issued,**
- Review ways of warning the public, improve provision of data from telemetry systems and its use in giving warnings - **national flood warning centre being set up and new codes to be introduced in Sept 2000**
- Target flood warning communications at vulnerable temporary locations such as caravan and camping sites – **ongoing**
- Work with Government to review research into the impact of climate change on flood frequency - **ongoing**

The South West Region is progressing work on target, however, a very large workload remains to meet these actions.

Major incident Plans
We also have a lead role in the Major Incident Plans for areas where there are large numbers of properties at risk from flooding. These plans are drawn together by the Agency with input from County Emergency Planning Officers, the Police, Fire Service, Local Authorities and other relevant bodies.

Flood Warning Level of Service Study (FWLOSS)
The FWLOSS for the Cornwall Area commenced in April 1999 and has been completed. The results from this study identify locations where a flood service can be introduced or improved. Any improvements that are identified will be assigned priority taking into account the needs of the whole region and the requirements of the Bye Report.

Flooding
Local planning authorities and ourselves are required by the DETR (in circular 30/92 – Development and Flood Risk) to liaise closely on flooding and surface water runoff matters. Under the recommendations from the Bye Report the Agency has updated a series of flood risk maps for each area.

Maintenance
Regular maintenance is essential if the river system and sea defences are to operate properly at times of flood. Such maintenance works include vegetation control, repairs to earth embankments and other floodwalls, obstruction and blockage removal, dredging and up keep of flood defence gates and sluices.

The cost of maintenance varies each year depending on need; it is generally in the order of £200,000 for the plan area. Meetings are held as necessary to outline our maintenance programme to external conservation bodies. Each year within this programme some conservation and recreational improvements are carried out.

MAFF High Level Targets and elaboration of the Agency's Supervisory Duty

Triggered by the Easter Floods 98, MAFF have produced further guidance on high level targets and elaboration of the Agency's Supervisory Duty. The High Level Target builds on actions already being progressed within the Easter Flood Actions and covers the following activities:

- Provision of flood warning
- Emergency exercises and emergency plans
- Development of National Flood and Coastal Defence Database
- Flood defence inspections and assessment of flood risk
- Completion and updating of Shoreline Management Plans
- Losses and gains of habitats covered by Biodiversity Diversity Action Plans
- Progress on Coastal Habitat Management Plans
- Report on Development in areas at risk of flooding and coastal erosion

The timescale for delivery of individual actions within this list vary from April 2000 to April 2002.

The elaboration of the Supervisory Duty is based upon the spirit of the legislative framework that currently exists, where the Environment Act 1995 sets the scope of the Supervisory Duty as "all matters relating to flood defence".

These wide ranging duties can be divided into the following sections:

- Condition of the flood and coastal defences and critical ordinary watercourses, to include the use of a national flood and coastal defence asset database
- Assessment of flood risk
- Achievement of high level targets
- Emergency response to flooding incidents
- Awareness of flood risk in the community
- Future development proposals that have potential impact on flood risk
- Regulation of others
- Application of conservation duty and environmental impact

The above targets and duties will significantly increase the workload of the Agency.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 29: Construct flood alleviation schemes								
29.1 Construct scheme at Perranporth.	Agency	1830 k	*	*				Completed in 1999
29.2 Construct scheme at Porthleven.	Agency	522k		*	*			Completed April 1999.
29.3 Construct scheme at River Hayle Tidal Barrier.	Agency	400k						Options have been assessed, earliest start winter 2001.
29.4 Consider scheme for Stennack River St Ives.	Agency	U						On hold awaiting funding.
29.5 Consider scheme for Portreath.	Agency	405k						On hold awaiting funding.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 30: Complete Flood Warning Levels of Service Study (FWLOSS)								
30.1 Improvements will be identified following completion of study.	Agency	10k			*			The Cornwall Area study commenced in May 1999.

4.12 Development pressures

Development pressures
The Agency is a statutory consultee on development plans and certain categories of planning application. This allows the Agency's views to be considered by the council prior to a planning application being decided or policies in a development plan being approved. For example, a proposed scheme to develop near a watercourse would be assessed by the Agency to ensure that it did not increase flood risk. If it was acceptable we might then seek to retain and enhance the area of the watercourse, improving the aesthetic, amenity and ecological qualities of the location.

The control of land use is primarily the responsibility of LPAs, through implementation of the Town and Country Planning Acts. Local development plans provide a framework for land use change and are the key consideration in the determination of planning applications. Our duties and powers with regard to development are described further in Appendix 2.

Flood Risk
All planning authorities were provided with an updated flood risk data survey in September 1999. These show flood plain information on all main rivers and on key ordinary watercourses in the area. These surveys will be updated annually.

Sustainable drainage
The Agency is encouraging the adoption of source control; the selective use of structures such as soakaways as part of a development to promote infiltration. These would help to replenish groundwater as well as reduce the erosion potential in watercourses, however their use must be site dependent. A video on source control 'Nature's Way' has been produced by the Agency and is available to planning authorities and other interested groups.

Environmental impacts on watercourses from increased development
There are a number of locations where consented sewage treatment discharges are having an environmental impact where we recommend development constraint. These are listed in our regularly updated consultation guides.

When commenting on applications, the Agency will normally request that a marginal strip of land of at least 7 metres width is retained either side of any watercourse, or wetland habitat within or alongside a development site. This measure seeks to retain functioning river wildlife corridors and wetland habitats, which have significant ecological, amenity and aesthetic value.

Foreshore development
When a development proposal includes infilling parts of the foreshore we assess the geomorphological, ecological, archaeological and landscape impact and whether there are suitable alternatives to the proposed development. Such development always requires a MAFF FEPA licence as well.

Pressures on water resources
The availability of water resources is an increasingly important issue across England and Wales. Whilst the Government has said that it does not expect water resources to be a reason for development proposals being rejected, the provision of adequate water supplies could have an influence on the timing of developments. The Agency comments on all county and district plans, and any individual planning applications that will have significant water use, with respect to water resources and water efficiency. However we can only comment on water resources in general as the specifics depend on which sources the relevant water company would plan to use to supply the development. In light of this we would wish to see water companies added to the consultation list.

Where private water supplies are likely to be required for a development they will be subject to the Agency's abstraction licensing procedure.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 31: Identification of flood risk areas through Section 105 surveys								
31.1 Schedule of locations to be established.	Agency	U						The 1999/2000 S105 contract is nearing completion. This has added more indicative floodplains on non-main rivers to our floodplain records. The flood incident locations map is currently being updated.
Issue 32: Review areas which are vulnerable to increased development								
32.1 Produce annual consultation guides for district councils.	Agency	Core	*	*	*	*	*	Agency specialists work with Local Authorities and the water companies to review vulnerable areas.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 33: Promote the adoption of development restraint areas								
33.1 Present revised consultation guides to planning committees and explain reasons for the need for development constraint.	Agency	U	*	*	*	*	*	The Kerrier consultation guide was published in September 1998. The Penwith Consultation Guide was published in March 1998. The Carrick consultation guide was published in March 1998. The plan is due for review in 1999.
Issue 34: Promote sustainable drainage								
34.1 Agency is continually developing national policy on source control and will promote it for inclusion in planning policy.	Agency	Core			*	*	*	Continuing to inform developers and planners of concepts through provision of advice and information. Including good practice guides on sustainable drainage.
34.2 Promotion of source control techniques and Best Management Practices	Agency	Core			*	*	*	

4.13 Meeting current and future demand for water

Water is an essential but finite resource. One of the Agency's roles is to protect the water environment (rivers, lakes and wetlands) from over abstraction whilst considering the needs of the public, agriculture and industry for water.

The Agency is not responsible for the supply of water to households and industry but has a central role in water resources planning in England and Wales. We look at how water is used in the home and at work and the water that is available for these uses without damaging the environment; this may involve correcting any imbalances or over abstraction. We compare future demands for water with water availability, and consider how to balance the two in an environmentally sustainable manner. To achieve this we work closely with the water companies and require them to submit detailed Water Resource Plans.

As a result of the last drought the Secretary of State also tasked the water companies with providing drought contingency plans. The Agency issued National Guidance during 1999 and the deadline for the first published plan from each company is April 2000.

Meeting Current Demand
To manage water resources, the Agency issues abstraction licences for specific volumes of water from identified sites for specific uses. The abstraction licence may include additional conditions to further control abstraction; this is in order to minimise the risk of environmental damage. The abstraction licensing system for England and Wales was reviewed during 1997/98 and a number of changes were proposed and consulted on. Taking Water Responsibly, a paper detailing the Government decisions following consultation, was published in March 1999 and is available from the Department of the Environment, Transport and the Regions (DETR). The full nature and impact of changes will not be confirmed until the legislation is approved by Parliament. We will need to implement any changes that arise from this process and amend licensing policies as appropriate.

Meeting Future Demand
Water resource planning is carried out over large geographic areas often extending over several LEAP boundaries. This makes it difficult to predict the precise impact of new development on water resources in the plan area. Before any new resources can be developed or existing resources developed further, the Agency must be satisfied that water companies have looked in detail at a range of appropriate options. These include:

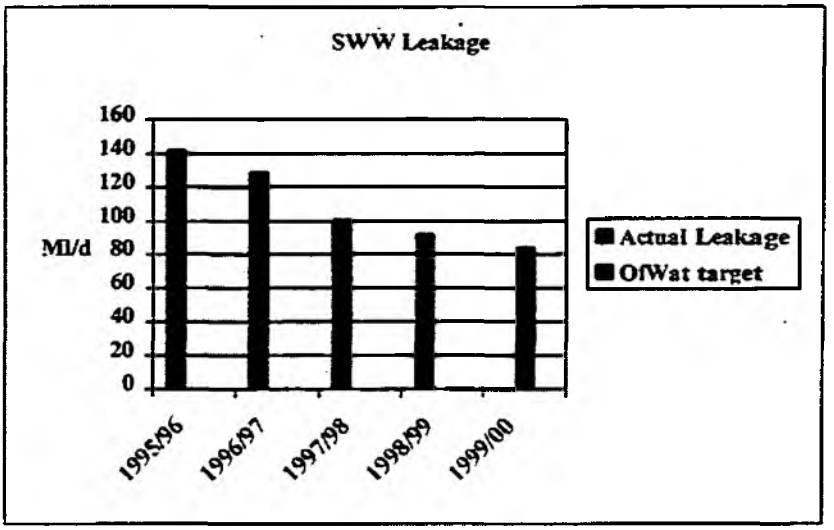
- Encouraging people to use water more efficiently (**demand management**),
- Increasing the efficient use of sources (**resource management**)
- Reducing leakage towards an acceptable level (**distribution management**).

Water Companies have a duty to promote efficient use of water and the Agency expects that they should pursue this duty with imagination and vigour. SWW has published a water efficiency plan, which contains strategies to deliver water savings by the customer. It includes advice on how to save water in the home and garden and explains what the company is doing to encourage other bodies, such as the local council and builders, to help the customer save water. Water efficiency advice is also available to business customers. SWW has a free educational resource pack, Running Water, which provides National Curriculum support for 8 to 13 year olds.

Demand Management
Demand Management involves a number of different initiatives including metering. Meters are installed in all new domestic properties connected to the water company supply and South West Water (SWW) domestic customers have the option to have a meter fitted at a subsidised price between now and April 2000. After this they will be able to have a meter fitted free of charge. People who have a garden sprinkler are asked to register it with the company on the understanding that they may be metered at a later date.

Resource Management
Water companies use areas known as Resource Zones in order to help manage the way which they supply water. The West Cornwall LEAP area is part of the Colliford Resource Zone which supplies water to most of Cornwall. The resource zone is primarily supplied by Colliford reservoir but this area is supported by abstractions from Stithians, Argal and College reservoirs.

Distribution Management
OFWAT set leakage targets for all water companies each year, which they are required to meet. The graph below shows the actual leakage that occurred each year over the whole of South West Water's area.



What everyone can do to help
The average family uses approximately 146 cubic meters (32,000 gallons) of water per year and within the home there are many opportunities to help reduce this figure, for example...

- turn taps off, take showers rather than baths
- replace washers, repair leaks quickly
- use low flush toilets, don't use power showers, use water efficient washing machines and dishwashers
- save water for the garden in water butts, use trigger switches on hose pipe nozzles, plant drought resistant garden plants, mulch flower beds to retain moisture and restrict weed growth

Our workplaces offer many opportunities to reduce water use (and save money). Some of the measures outlined above may be suitable, together with process/site specific measures. Examples of these and other water efficiency measures are detailed in the document *Saving Water* on the right tracks 2 which can be obtained from the Agency.

Rainwater collected from roofs and recycled household waste wash water (greywater) can be used for toilet flushing and garden watering. It offers potential for large water savings but, to encourage more use of suitable systems, there is a need for water quality standards to be established. A series of fact sheets on water conservation measures is available from your Local Agency Office.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 35: Modelling of Colliford Strategic Supply Zone to determine the yield, best use of available resources and future developments								
35.1 Agency to audit SWW reassessment of yields for all sources within the Colliford supply zone.	Agency	40k	*	*				This has been completed and the drought management plan has been incorporated within the Colliford operating agreement.
Issue 36: Prepare water resources plans in conjunction with SWW and publish a revised regional water resources development strategy								
36.1 Prepare water resources plans.	SWW	80k for whole county	*	*				SWW's water resource plan was received in April 1999.
36.2 Revise regional water resources development strategy.	Agency							A report on by the Agency 'Planning Public Water Supplies ' was sent to DETR in June 1999.
36.3 Prepare Drought Management Plans in conjunction with water company.	Agency SWW	15k			*	*		Agency issued guidance during 1999 and the final drought management plan is due to be submitted by SWW in April 2000.

4.14 Waste Management

The management of waste is regulated through a series of European directives and UK legislation. This legislation sets out not only the Environment Agency's regulatory powers but also puts responsibilities on all parties involved in the management of waste.

The Community

We all produce a great deal of waste and we all have a "Duty of Care". The "Duty of Care" is a law that applies to anyone who produces, keeps, transports or disposes of waste. It says that we must take reasonable steps to keep waste safe, and if we give the waste to anyone else we must be sure that they are authorised to take it and can dispose of it safely.

We can also help by reducing the amount of waste that we each produce, by re-using items, by supporting facilities and initiatives such as composting or recycling schemes. While local authorities and the Agency can give advice on managing

waste, we all have a part to play in helping to reduce the waste problems in Cornwall.

The Waste Hierarchy

One of the European directives,' The Framework Directive on Waste' introduced the idea of a 'waste hierarchy' which forms the basis for waste planning today. The waste hierarchy is a list of waste management options based on the sustainability and environmental costs of each option. The best solution is to avoid producing any waste in the first place i.e. reduction of waste, while landfill is the option with the most environmental impact. The waste hierarchy sets out a framework to allow a move away from the current reliance on disposal of waste to landfill to more sustainable methods of waste management. This will allow the best practicable environmental option (BPEO) for the disposal waste to be achieved.

Waste Hierarchy

1. Reduction of waste
2. Re-use of waste
3. Recovery of waste, including incineration with energy recovery, composting and recycling
4. Landfill and/or incineration with no energy recovery

The waste hierarchy is only a guide to waste management options. The best practicable environmental option will depend on the waste, and the availability of different types of waste management facilities close to where waste is generated. Therefore solutions to waste management need to be decided locally.

Cornwall Waste Management Forum

The Forum, which is made up from representatives of the waste collection authorities (district councils), the waste disposal authority, waste disposal contractor and the Agency, meets regularly to exchange views, examine new technology and best practice and to discuss an integrated waste strategy for Cornwall. This group recognises the need for a co-operative approach aimed at a more sustainable waste management system.

Organisations responsible for Waste Management

There are a number of bodies responsible for the planning and regulation of waste collection, management and disposal

The Environment Agency

The Agency has a wide range of responsibilities relating to waste management both locally and at a national level.

- We regulate and advise organisations and individuals that are involved in the transportation, handling, treatment and disposal of controlled wastes. We also carry out monitoring and enforcement activities to ensure that waste management licence conditions are met.
- We play an active role in the development of the national waste strategy, for example, in carrying out the national waste production survey, and in supporting waste minimisation schemes.
- We advise both county and district councils on waste matters. We also work in partnership with local authorities to control fly tipping.
- We work with government on the development of policy.
- We provide information to the public and interested bodies through the

public registers, technical guidance documents, and LEAPs
- We carry out R&D to ensure that our activities are based on a sound scientific basis

Central Government
The government is responsible for the development of a Statutory National Waste Strategy for England and Wales, which is due for completion in early 2000, to address the following:
- Ensure waste is managed without endangering human health or the environment.
- Establish a network of adequate waste disposal facilities taking account of best available technologies.
- Encourage the prevention or reduction of waste production.
- Encourage the recycling, reuse, reclamation and use of waste as a source of energy.

County Councils
Cornwall County Council is the waste planning authority and the waste disposal authority. As waste planning authority it is responsible for developing a countywide waste strategy, the Waste Local Plan. It also has the responsibility for determining planning applications relating to waste management activities. As the waste disposal authority it is responsible for arranging for the disposal of household and commercial waste and the provision of civic amenity sites.

District Councils
As the waste collection authority, district councils have the responsibility for the collection and management of household waste. They are also the instigators of local initiatives and waste minimisation publicity campaigns.

Waste Contractors
There are a large number of waste contractors operating within Cornwall. The principle operator for the disposal of household waste is County Environmental Services Ltd (CES) who are wholly owned by Cornwall County Council. CES manage four landfill sites and a transfer station in the county, and are contracted to take all household waste produced in Cornwall.

Cornwall Waste Management Forum
The Forum, which is made up from representatives of the waste collection authorities (district councils), the waste disposal authority, waste disposal contractor and the Agency, meets regularly to exchange views, examine new technology and best practice and to discuss an integrated waste strategy for Cornwall. This group recognises the need for a co-operative approach aimed at a more sustainable waste management system.

The Current Position in Cornwall
The following list shows the various types of waste that is currently produced in Cornwall;

- Household
- Commercial/Industrial
- Construction/Demolition waste

- Special/Hazardous Waste
- Clinical Waste
- Sewage sludge
- Scrap Metals
- Agricultural Wastes
- Mines and Quarries Wastes
- Dredged spoils

Cornwall produces approximately 30 million tonnes of waste each year, of which approximately 22 million tonnes arise from mining and quarrying and 6 million tonnes from agriculture. Approximately 1.28 million tonnes of commercial, industrial and household waste are produced each year, of which 217,000 tonnes comes from household collections. he amount of waste produced in Cornwall is increasing each year. (Source - Cornwall Waste Local Plan, Consultation Draft)

Cornwall currently recycles approximately 6% of domestic waste, compared to 7.5% nationally (1996/97), with the rest going to landfill.

There are three operational landfill sites in Cornwall (Holwood Quarry, Connon Bridge, United Mines) that accept household, commercial and industrial waste, but these have limited life span. Detailed estimates of the remaining life expectancy of these sites are available in the Cornwall Waste Local Plan, consultation draft. Holwood Quarry is closed as a landfill but still operates a civic amenity site. The current site at United Mines, which receives approximately 57 % of the commercial, industrial and household wastes from Cornwall, will be exhausted in 2002. At current rates of waste disposal Connon Bridge will close during 2008, however, if no alternative to United Mines is found, Connon Bridge will be full by 2004.

Waste Survey

In April 1999 the Environment Agency neared completion of its National Waste Production Survey. Agency staff and consultants have visited or telephoned many thousands of businesses. Information on the types and quantities of wastes being generated and how they are being managed is being entered onto the National Waste Database. After a period of detailed analysis the information will be used to inform the Government's Statutory National Waste Strategy. Local Authorities and the waste management industry will be able to use the statistics to assist their policy decisions on the provision of future waste facilities. It is believed that the Survey is the largest investigation ever into waste production.

Composting on mineral waste sites.

Some derelict mining sites may be capable of being remediated by means of spreading a layer of composted plant matter (greenwaste) over their surface. This would achieve the dual benefits of land reclamation with waste recovery. Final land use is likely to be of a recreational or amenity nature. Site selection and planning of such projects would have to take account of the proximity and quantity of suitable wastes, access for deliveries, conservation and heritage issues, future land use, etc. Such schemes are hardly likely to be undertaken on a commercial basis but the Agency would seek to encourage partnerships between land owners, local authorities, funding bodies and community groups who may be able to combine to set up sustainable projects. Manpower and machinery resources would be required. Not all-derelict mining sites would lend themselves to such treatment and full consultation with relevant bodies would be necessary.

Energy from waste
Existing landfill sites are reaching capacity and new sites are becoming increasingly difficult to set up. Many recycling options face logistical, economic and sustainability barriers. There is a growing realisation that energy from waste schemes may represent the Best Practicable Environmental Option for wastes arising in Cornwall.

County Environmental Services Ltd. has announced its intention to seek planning consent for an energy from waste plant. This is essentially a power station fuelled by waste. A number of possible sites are being assessed against selection criteria which have been agreed between the Company, County planners and the Environment Agency. From site selection to the operational stage for such a major development is likely to take a period of years.

Incinerators which comply with the latest emission control requirements are much improved from the previous generation dating from the 60's and 70's. Public concern has to be answered with accurate information and open discussion. This method of waste management is undergoing something of a revival in the UK.

Waste Minimisation for Small and Medium Sized Enterprises
Small and Medium-sized Enterprises (SMEs) produce a quantity and variety of wastes, particularly in the take-away food sector. Two of the issues needing addressing are over- packaging and littering.

The Environment Agency would like to be involved with SMEs to develop waste minimisation initiatives. In West Cornwall the Agency has collaborated with three District Councils and the Plymouth-based Payback organisation to facilitate a Waste Minimisation Club of local businesses. At a launch meeting in Redruth on 27th April, 1999 nine companies joined the club and undertook the 12 month programme. The ability of the Agency and other organisations to contact individual businesses can be limited by competing demands on staff time. A more efficient and productive approach is through partnership arrangements as above, targeting specific business sectors or geographic areas. Of the nine companies, two are now working toward ISO 14001. One company has identified savings of >£50k and a number of the companies have redressed potential breaches in legislation.

Waste minimisation has several advantages for businesses; cost savings, improved environmental performance and customer confidence. Several waste minimisation groups up and down the country have recorded spectacular successes for member Companies with rapid payback on quite small investments.

Camborne School of Mines Waste Research Project
Camborne School of Mines (CSM) has successfully completed a feasibility study into the viability of a dedicated Waste Test and Research Centre in Cornwall. The aim is to utilise CSM's expertise in mineral processing separation technology for the benefit of recovery of secondary raw material from industrial waste streams, the remediation of contaminated soil and dredgings, and reduction in waste volume for disposal. CSM has recently won a grant under Objective 5b, supported by the University of Exeter, RCES (UK) Ltd and CSMA Consultants Ltd, to develop and implement five waste processing or recycling research initiatives by September 2001, based on partnerships with industry in Cornwall. CSM will also develop postgraduate training in waste separation technology within the University of Exeter CPD Award Scheme. The Agency is supportive of the concept and is represented on the project steering group.

ReMaDe Initiative
The aim of this initiative is to develop local markets for recyclable materials in Cornwall. The challenge is to move from landfill dominated waste management towards solutions based on recycling i.e. more sustainable waste management. Material specific projects will be identified and established. The project is capable of being extended to other materials and expanded to adjoining local authority areas.

The principles of developing local markets are to find higher value and new uses for recycled materials within industries outside those that produced the material. The benefits of local re-manufacture and use include adding value to recyclables, creating local employment, eliminating transport to more distant markets and protecting recycling programmes from price fluctuations.

County Environmental Services has established a working group to examine the issues in detail with a view to initiating a market development programme for Cornwall.

The future
The way waste is managed in Cornwall will be affected by national, county and local initiatives.

The previous Government's white paper "Making Waste Work", published in 1995, set out targets for achieving more sustainable management of waste, as follows:

- To reduce landfill from 70% to 60% of controlled wastes by 2005, and
- To increase recycling and recovery so that they dealt with 40% of municipal waste by 2005

There were also a number of subsidiary targets including one of recycling and composting 25% of household waste by 2000.

The present Government is reviewing those targets following its publication of its consultation on the waste strategy for England and Wales "Away With Waste". This will be a statutory strategy and will be published in spring 2000.

Various legal requirements are also place increasing emphasis on the recovery and recycling of wastes, particularly within industrial sectors, as follows:

- Producer Responsibility Obligations (Packaging Waste) Regulations 1997. This legislation places targets on businesses in the packaging chain to recycle or recover certain volumes of packaging waste, dependant upon the volume they handle. The aim of the regulations is to divert wastes away from landfill and to encourage changes in packaging design.

- Landfill Tax. The operators of landfill sites pay this tax for every tonne of taxable waste taken to the site. From 1 April 1999 the tax rates are £2 for every tonne of inert waste and £10 for every tonne of putrescible wastes. The aim of the tax is to encourage other routes for recovering or re-using waste rather than landfill.

- Landfill Directive. This directive requires that reductions are made in the volumes of biodegradable wastes going to landfill. The directive also requires the treatment of certain types of waste prior to disposal and the banning of other

waste from landfill, such as explosive, clinical, and liquid waste or tyres.

Through consultation on this LEAP the waste management industry has indicated that it requires a stable market place to encourage investment in alternative waste management initiatives. The costs of setting up new waste management facilities are high. The legal requirements are constantly changing and the market is fluctuating. In a business environment where investment-planning horizons are set at 10 or 20 years, it is difficult to secure investment when the waste industry can only make forecasts for the next 5 years. These concerns have been reflected in the Agency's response to "Away With Waste".

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 37: Carry out waste arisings survey								
37.1 Carry out waste arisings survey.	Agency	U		*				The National Waste Production Survey was completed in 1999. The results are being analysed.
Issue 38: Reduce waste production								
38.1 Reduce waste production.	Agency			*	*	*	*	Waste minimisation advice is offered to businesses during routine visits and more especially as part of waste survey interviews. A West Cornwall Waste Minimisation Group was run during 1999. 9 companies joined the club. A second club will start in April 2000.
Issue 39: Reduce waste requiring disposal by encouraging and developing recycling initiatives								
39.1 Develop and promote campaigns initiatives and partnerships with businesses and other organisations.	Agency			*	*	*	*	Copies of the Agency Waste Minimisation and Commercial Waste Recycling Directory have been sent to local businesses.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 40: Identify criteria for waste disposal sites								
40.1 Consultation on Cornwall County and Local Authority plans for the identification of disposal sites and through the licensing process.	Agency			*	*	*	*	The Agency has been consulted on the County Waste Local Plan. We will consider any proposals for sites as and when they are put forward.
Issue 41: Reduce fly tipping								
41.1 Rigorous enforcement and publicity to minimise fly tipping.	Local authorities/Agency			*	*	*	*	The introduction of a memorandum of understanding between the Local Authorities and the Agency gives the Local Authorities the lead on dealing with minor fly-tipping incidents.
Issue 42: Draw up strategies for sustainable waste management								
42.1 Draw up strategies for sustainable waste management.	Agency/ County Council/ District Councils				*	*	*	An Agency representative gives waste strategy advice at meetings of the Cornwall waste management forum which comprises officers and members of the County and District Councils.
42.2 Preparation of a county-wide Local Authorities Integrated Waste Management and Recycling Plan for 1999 to 2005.	District Councils, Agency				*			DETR requested district councils to review their recycling plans. The Agency is a consultee to the development of the updated Recycling plan.
Issue 43: Working together to manage our waste								
43.1 Encourage and educate communities and individuals in waste management.	District Councils, Agency			*	*	*	*	The Agency seeks to promote and encourage education of communities into the use of facilities for sustainable waste management.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
43.2 Use facilities and support campaigns such as recycling, composting schemes etc	All			*	*	*	*	

4.15 Effects of Tributyltin (TBT)

Tributyltin, or TBT, is an anti-fouling agent used to prevent the accumulation of barnacles and other marine life on the hulls of ships. In 1987, in recognition of its highly toxic effects on the environment, its sale for use on vessels under 25m was prohibited. However, its use is still permitted on vessels greater than 25m in length. The International Maritime Organisation has recently recommended that the application of TBT paints to any vessels should be banned from 1 January 2003, and that TBT paints should be removed from all vessels by 1 January 2008.

TBT Survey of the Cornish Coast

The Agency has been studying populations of dogwhelks, Nucella lapillus, which are particularly sensitive to TBT. Levels as low as 1ng/1 have been shown to induce imposex (sex-change effects in female dogwhelks). Chronic exposure to TBT eventually leads to sterility in dogwhelk populations.

In the West Cornwall area the survey was carried out at Mullion, Porthleven, Marazion, St Ives, Portreath, Trevaunance Cove and Perranporth. All sites that supported a population of dogwhelks showed a degree of imposex. The survey did however find that all populations contained a healthy proportion of juveniles. This suggests future breeding success of those dogwhelk populations.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 44: Carry out improvement programme								
4.1 Treatment of TBT releases to water by October 1999.	Operator		*	*	*			TBT effluent now collected for off-site treatment.

4.16 Air Quality

The Cornwall Air Quality Forum has been formed as one of 14 pilot areas nationwide. It is led by Carrick District Council, and has representation from all local authorities in the county and the Agency. We do not cover all aspects of air pollution but work closely with other regulatory bodies such as local authorities. Local authorities are currently assessing the air quality and identifying possible problems for their districts. The Agency acts as an information provider and advisor on the industries we regulate.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Issue 45: Draw up strategy								
45.1 Conference arranged to plan future work.	Cornwall Air Quality Forum							The Conference was convened and the CAQF is now co-ordinating the Local Authorities response to the National Air Quality Strategy. The Agency is represented on the Forum.

4.17 Integrated Pollution Prevention and Control (IPPC)

The IPPC Directive is designed to prevent, reduce and eliminate pollution at source through the prudent use of natural resources. It is intended to help industrial operators move towards greater environmental sustainability.

The Pollution Prevention Control Act 1999 provides for the implementation of EC Directive 96/61 on Integrated Pollution Prevention and Control and consequently the introduction of a single pollution control regime for England and Wales.

Under the regulations, the Agency will have an essential role in regulating specified types of activity and installation. These include current integrated pollution control sites, landfills and discharge activities already licensed by the Agency as well as a number of new activities such as intensive pig and poultry farming and the food and drink industry.

What will be required of operators?
Operators will need to show that they will run their installations in a way that prevents emissions to the land, air and water or where that is not practicable, reduces them to a minimum.

Operations must apply the following general principles:

Use Best Available Techniques in controlling discharges to air, soil and water and addressing other issues such as odour, noise and vibration.

Minimise waste and recycle it where they can

Conserve energy

Prevent accidents and limit their environmental consequences

Return the site to a satisfactory state after the operation cease

4.13 The Eclipse

The Agency, along with other authorities, had made contingency plans for the Eclipse in August 1999. In the event, the large predicted crowds did not materialise and no major problems were encountered.

APPENDIX 1 CORNWALL BIODIVERSITY ACTION PLAN

The following are a list of actions involving the Environment Agency from the Cornwall Biodiversity Initiative - Biodiversity Action Plan.
The full list of actions for all organisations and partners can be found in the Cornwall Biodiversity Action Plan.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Support Cornwall Biodiversity Initiative and Biodiversity Action Plans for Key species and habitats								
Produce an Action Plan for Wetlands by September 1998. Target: To ensure no further loss of wetland habitats Target: To identify and restore natural drainage regime to one degraded wetland site by 2000.	Agency CWT	U						The action plan was published in July 1998.
Produce an Action plan for Heathlands by June 1998 Target: To ensure no further loss of heathland habitat.	EN	U						The action plan was published in July 1998 as part of the Cornwall Biodiversity Action Plan.
Produce an Action Plan for boundary features, particularly hedgerows and field margins by June 1998.	CWT	U						The action plan was published in July 1998 as part of the Cornwall Biodiversity Action Plan.
Produce a Farmland Species Action Plan by June 1998.	RSPB	U						The action plan was published in July 1998 as part of the Cornwall Biodiversity Action Plan.
Produce a generic Seabirds and Wader Action Plan by June 1998.	RSPB	U						The action plan was published in July 1998 as part of the Cornwall Biodiversity Action Plan.
Produce biodiversity targets for Metalliferous mine sites in the catchment.	EN/ Agency /CWT	U						The action plan was published in July 1998 as part of the Cornwall Biodiversity Action Plan.
Produce a management plan for the Red River Valley to ensure that its Biodiversity potential is maximised by September 1998.	Agency	U						Completion of the plan is due in 2000.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Produce biodiversity targets for Estuaries.	EN/ Agency /CWT	U						The action plan was published in July 1998 as part of the Cornwall Bio-diversity Action Plan.
Produce biodiversity targets for coastal zone. Target: Identify and restore two degraded coastal sites by 2002.	EN/ Agency /CWT	5 K						Completion of the targets is due in 2000.
Produce Species Action Plans by 2003. Status of a number of species within the catchment need clarifying	EN/ CWT	30K						Work towards the completion of the plan is ongoing.
Utilise LIFE data to identify sites where existing blocks of priority habitat can be linked.	Agency /EN/ CWT							The Agency is becoming closely involved in English Natures project 'Tomorrows Heathland Heritage'. Which offer opportunities to deliver targets.
Actions for individual species and habitats arising from the Biodiversity Action Plan								
Shore dock								
Establish monitoring and research programme of hydrological conditions at dune slack sites including identifying standards that will maintain shore dock populations.	Agency /Others	U						We are undertaking monitoring at Penhale dunes.
Little egret								
Ensure that little egret is taken into account in estuary management plans, candidate SACs and related single schemes of management.	Agency /Others	U						Work on this topic is ongoing.
Sea Birds and Waders of the Hard Coast								
Establish a framework to reduce net mortality in St. Ives Bay to insignificant levels.								

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Inform contingency planning (e.g. disaster planning, shipping route management) exercises of important areas for seabirds / hard coast birds.								
European otter								
Appointment of an Otter and River project officer, funded by the Agency, Cornwall Wildlife Trust and the Water Services Association. The officer will be responsible for looking after the interest of the otter population throughout the County.	Agency /Others	U						The officer was appointed in March 1999
Farmland habitats and species								
Achieve more flexibility in allowing field exchanges within IACS where there would be conservation benefits.	Agency /Others	U						MAFF are currently being lobbied on this issue.
Lobby as appropriate in order to ensure improvements in air quality as technology arises and its application is practicable.								The Agency sits on the Cornwall Air Quality forum.
Wetland								
Recreate reedbed habitat on small sites (< 20ha).	Agency /Others	U						This is a Cornwall wide initiative and sites are being identified at present.
Organise training day for planners/developers on potential for inclusion of wetland habitat (e.g.) reedbed, in new developments.	Agency /Others	U						This is a Cornwall wide initiative.

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Create a register of sites, including a set of maps, in order to: identify existing wetland sites, and appropriate management for them; identify the potential for the extension of existing sites; identify suitable sites for restoration, taking account of the requirements of Cornwall priority species.								The work is being scheduled at present.
Coastal zone								
Consider appropriate measures to limit damage to nesting birds and other wildlife through the activity of recreational motorised craft. Maintain awareness of all sports within the coastal zone, and their possible impact on biodiversity.								The Agency has recently appointed a regional recreation officer who will advise on the impact of recreation in the South West region.
Estuaries								
Ensure proper examination of the system through which byelaws are created, given the difficulty of creating environmental bye-laws. By 2000.	Agency /Others	U						The Agency is involved in the production of a Cockle Harvesting Bye-law.
Produce interpretative material which may be used in isolation, such as leaflet for each estuary, or integrated within existing publications.	Agency /Others	U						Work on producing and disseminating information is ongoing.
Wet woodlands								
Safeguard and maintain all established semi-natural wet woodland sites.	All partners	U						

Action	Lead Body	Cost (£)	Financial Years					Progress Year 2
			98	99	00	01	02	
Carry out study of wet woodlands in Cornwall leading to their identification, evaluation and the production of guidelines for easy evaluation on site, including management advice.	All partners	U						

APPENDIX 2 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 our work is advisory, with the relevant powers resting with other bodies such as Local Planning Authorities. For example, we are not responsible for:

2. Noise problems (except if it is to do with our work)
3. Litter (unless it is restricting the flow of a river)
4. Air pollution arising from vehicles, household areas, small businesses and small industry
5. Collecting waste in your local area
6. Planning permission
7. Environmental health
8. Food hygiene

These are all dealt with by your local planning authority who will contact us if necessary. We are not responsible for the quality or supply of drinking water at the tap or for treating sewage waste, although we regulate discharges from sewers and sewage treatment works.

The following table summarises our 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 direct powers) in:	Partnership:
Water Resources The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.	Grant or vary water abstraction and impoundment licences on application. 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. Secure the proper use of water resources through its role in water-resources planning, the assessment of reasonable need for abstractions and promotion of more efficient use of water resources. Monitor and enforce abstraction and impoundment licence conditions.	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 lay out of the infrastructure.	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.

Agency Duty:	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership:
Flood Defence The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.	Control, through Land Drainage consents, the development or construction of a structure that would affect the flow of an ordinary watercourse (Water Resources Act, 1991 Section 109, Land Drainage Act, 1991 Section 23). Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991. Undertake works to main rivers using permissive powers. Issue flood warnings relating to main river to the public, local authorities and the police. Consent mineral workings within 16 metres of main rivers.	Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by local planning authorities. Installation of surface water source control measures e.g. flood attenuation structures. Supervising the maintenance of ordinary watercourses which is a local authority remit, but may impact on main rivers. Installation of buffer zones which reduce flood risk and have significant environmental benefits. Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance.	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. The Agency will encourage best practice, including source-control measures and common standards, among local authorities and riparian owners to protect and enhance the environment. The Agency works with the civil authorities to prepare flood-warning dissemination plans and supports their endeavours to protect communities at risk.

Agency Duty:	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership:
Water Quality 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.	Issue discharge consents to control pollution loads in controlled waters. Regulate discharges to controlled waters and into or onto land in respect of water quality through the issue and enforcement of discharge consents. Prosecute polluters and recover the costs of clean-up operations.	The control of runoff from roads and highways. This is a Highway Agency duty. The greater use of source-control measures to reduce pollution by surface-water runoff. Prevention and education campaigns to reduce pollution incidents.	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.
Air Quality The Agency has a duty to implement Part 1 of the Environment Protection Act 1990.	Regulate the largest technically-complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO. Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes.	The vast number of smaller industrial processes which are controlled by local authorities. Control over vehicular emissions and transport planning.	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

Agency Duty:	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership:
Radioactive Substances The Agency has a duty under the Radioactive Substances Act 1993 to regulate the use of radioactive materials and the disposal of radioactive waste.	To issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public.	The health effects of radiation.	The Agency will work with users of the radioactive materials to ensure that radioactive wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with MAFF to ensure that the disposal of radioactive waste creates no unacceptable effects on the food chain. The Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites. The Agency will work with the HSE on worker-protection issues at non-nuclear sites.
Waste Management 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.	Vary waste management licence conditions. Suspended and revoke licences. Investigate and prosecute illegal waste management operations	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.	The Agency will work with waste producers, the waste-management industry and local authorities to reduce the amount of waste produced, increase re use and recycling and improve standards of disposal.

Agency Duty:	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership:
Contaminated Land 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.	Regulate the remediation of contaminated land designated as special sites. Prevent future land contamination by means of its IPC, Water Quality and other statutory powers. Report on the state of contaminated land.	Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land.	The Agency supports land remediation and will promote this with developers and local authorities and other stakeholders.
Conservation 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.	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.	The conservation impacts of new development. These are controlled by local planning authorities. Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to local authorities and developers to protect the integrity of such sites or species. Implementation of the UK Biodiversity Plan for which it is the contact point for 12 species and one habitat.	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.

Agency Duty:	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership:
Landscape 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.	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.	The landscape impact of new development, particularly within river corridors. This is controlled by local planning authorities.	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.
Archaeology 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.	The Agency must promote its archaeological objectives though the exercise of its water-management and pollution-control powers and duties.	Direct protection or management of sites or archaeological or heritage interest. This is carried out by local planning authorities, County Archaeologists and English Heritage.	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.

Agency Duty:	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership:
Fisheries The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.	Prosecute offenders who use illegal methods to take fish and can seek forfeiture of all associated equipment. Regulate fisheries by a system of licensing. Make and enforce fisheries byelaws to prevent illegal fishing. Promote the free passage of fish and consent fish passes. Monitor fisheries and enforce measures to prevent fish-entrainment in abstractions. Promote its fisheries duty by means of land-drainage consents, water abstraction applications and discharge applications. Regulate the introduction of fish species to rivers and lakes.	The determination of planning applications which could affect fisheries.	Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries.
Recreation The Agency has a duty to promote rivers and water space for recreational use.	The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management.	Promotion of water sports. This is carried out by the English Sports Council and other sports bodies.	The Agency will work with the Countryside Agency, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment.

APPENDIX 3 THE QUALITY OF SURFACE WATERS

River Quality Objectives

The water quality targets that we use for managing water quality are known as River Quality Objectives (RQOs); these are based on the River Ecosystem (RE) classification scheme. The RE classification comprises five hierarchical classes as summarised below:

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

Where immediate solutions or resources are unavailable to resolve current water quality problems, we may also have set a long term RQO (LT RQOs). We measure compliance against RQOs but use LT RQOs as a basis for setting consents for new discharges. This will ensure that future developments will not prevent us from achieving our long-term objectives.

In certain circumstances we can 'set aside' data, that is we will not take into account some or all of the results of a particular determinand when we assess compliance with an RQO. We will set aside data where high concentrations of metals, or low pH, are caused by the natural geology of the catchment. This allows us to protect good water quality reflected by other parameters in the RE classification.

EC Directives

We also manage water quality by applying standards set in EC directives and other international commitments.

EC Bathing Waters Directive

The EC Directive concerning the quality of bathing water (76/160/EEC) seeks to protect public health and the amenity value of popular bathing waters by reducing pollution. The Directive contains standards for nineteen microbiological, physical and chemical parameters to assess bathing water quality. Compliance is assessed mainly by testing against standards for faecal indicator bacteria.

We are responsible for monitoring the quality of identified, popular bathing waters and providing the results to DETR who decide whether the standards in the Directive have been met. Where identified bathing waters fail to meet the Directive, we are responsible for identifying sources of pollution that are causing failures, and making sure that improvements are made.

EC Dangerous Substances Directive

The EC Directive on *pollution caused by certain substances discharged in the aquatic environment of the community* (76/464/EEC) protects the water environment by controlling discharges to rivers, estuaries and coastal waters.

This Directive describes two lists of compounds. List I contains substances regarded as particularly dangerous because they are toxic, they persist in the environment and they bioaccumulate. Discharges containing List I substances must be controlled by Environmental Quality Standards (EQSs) issued through Daughter Directives. List II contains substances which are considered to be less dangerous but which can still have a harmful effect on the water environment. Discharges of List II substances are controlled by EQSs set by the individual Member States.

We are responsible for authorising, limiting and monitoring dangerous substances in discharges. We are also responsible for monitoring the quality of waters receiving discharges, which contain dangerous substances, and reporting the results to the DETR who decide whether the standards in the Directive have been met. Where the requirements of this Directive are not met, we are responsible for identifying sources of pollution and making sure that improvements are made.

EC Urban Waste Water Treatment Directive

The EC Directive concerning urban wastewater treatment (91/271/EEC) specifies minimum standards for sewage treatment and sewage collection systems.

This Directive specifies that secondary treatment must be provided for all discharges serving population equivalents greater than 2,000 to inland waters and estuaries, and greater than 10,000 to coastal waters. Discharges below these population equivalents receive appropriate treatment as defined in the AMP2 guidance note. We are responsible for making sure that discharges receive the level of treatment specified in this Directive.

This Directive also requires higher standards of treatment for discharges to sensitive areas. Sensitive areas are those waters that receive discharges from population equivalents of greater than 10,000, and are, or may become, eutrophic in the future.

The DETR decide if a watercourse is sensitive, based on monitoring information provided to them by the Environment Agency. We also ensure that discharges to sensitive areas receive a higher level of treatment. We are responsible for auditing the results of these studies.

Acknowledgements

We would like to thank all those who have given valuable contributions to this report about activities during the past year. We would like to give particular thanks to the LEAP Steering Group. They are:

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Mr	D	Davies	Truro College
Mr	D	Flumm	RSPB
Mr	M	Johnson	Riparian Owner
Mr	WT	Knott	Marazion Angling Club
Mr	R	McCawley	South West Water
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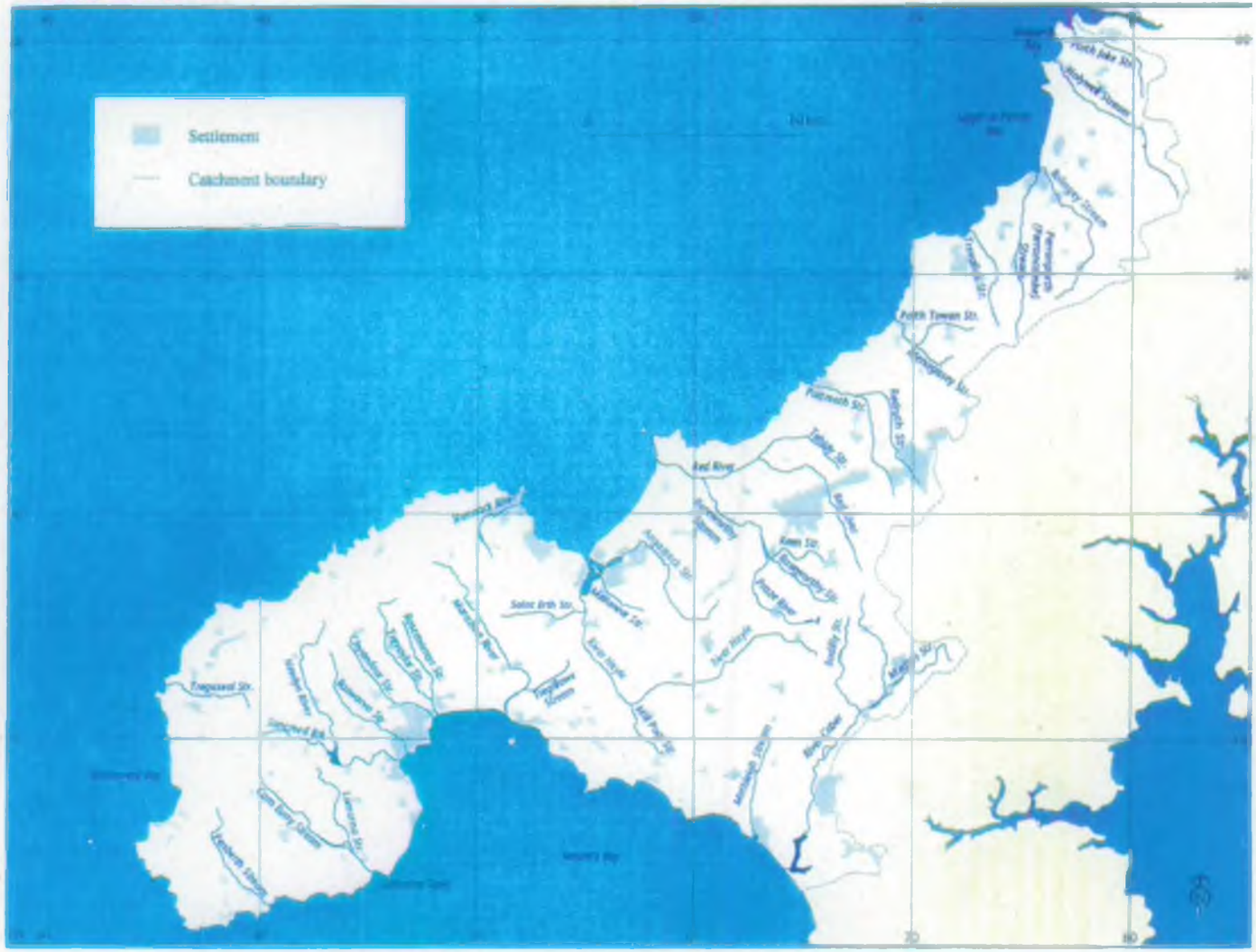

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