

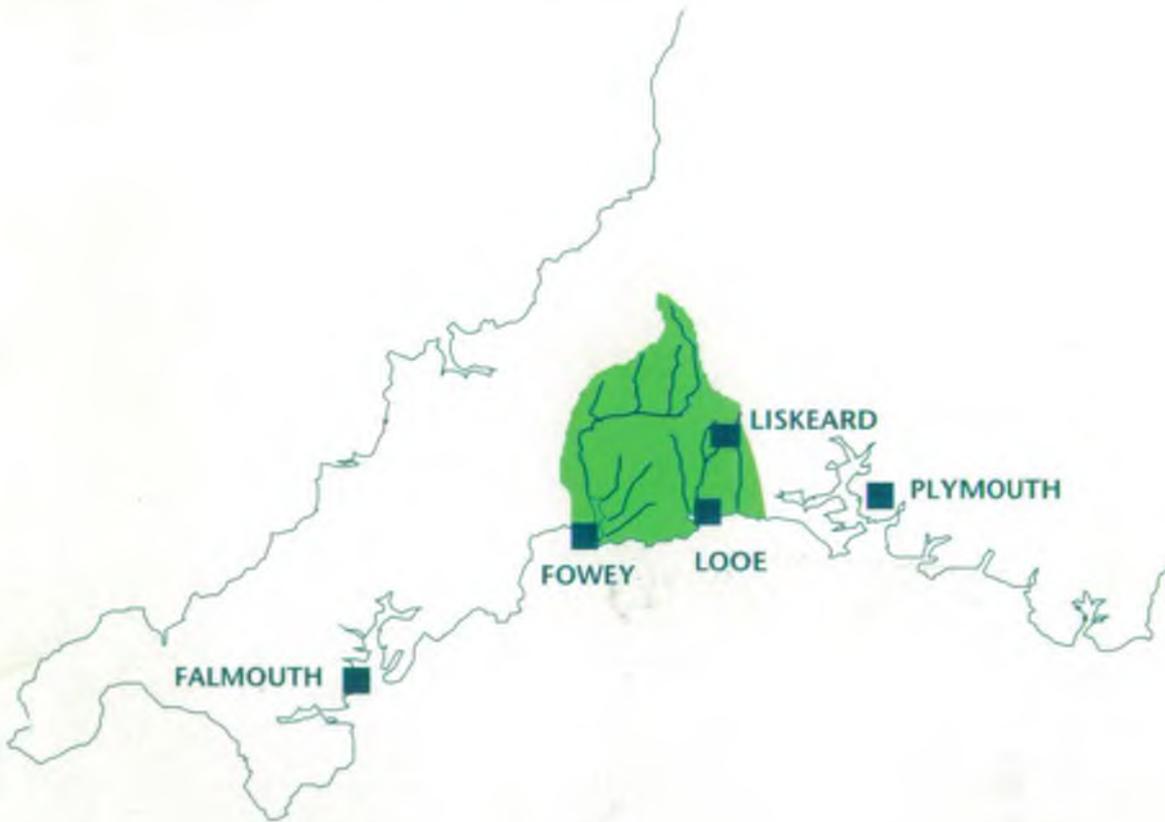
Box 14



**local** environment agency plan

**SEATON, LOOE AND FOWEY**

PLAN from MAY 1999 to MAY 2005



ENVIRONMENT  
AGENCY

Further copies of this Action Plan are available from:

Team Leader, LEAPs  
Environment Agency  
Sir John Moore House  
Victoria Square  
Bodmin  
Cornwall PL31 1EB  
Tel: 01208 78301 Fax: 01208 78321

**Environment Agency Copyright Waiver**

This report is intended to be used widely, and may be quoted, copied or reproduced in any way, provided that the extracts are not quoted out of context and that due acknowledgement is given to the Environment Agency.

Published May 1999

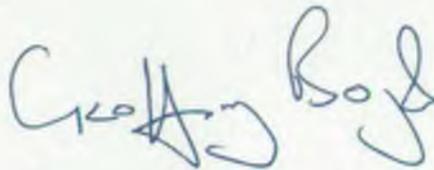




## Foreword

This Action Plan sets out the tasks that the Agency and others will carry out over the next five years. The actions address problems that arise from the pressures on the environment, and seek new opportunities to enhance it. Other solutions will be looked at in a longer-term perspective or a wider area. The effects of these issues on the area are also described.

We thank all who responded during the consultation period for this Action Plan. The spirit of partnership needed to implement this plan is represented by their valuable contributions; a spirit that will ensure that all who care for the environment can work together to enhance the whole.

A handwritten signature in blue ink, appearing to read 'Geoff Boyd', written in a cursive style.

**GEOFF BOYD**  
**Cornwall Area Manager**



# Contents

## Seaton Looe and Fowey - Local Environment Agency Plan Action Plan

<b>Introduction</b>	<b>1</b>
<b>Review of the consultation process</b>	<b>4</b>
<b>Overview</b>	<b>5</b>
<b>Protection through Partnership</b>	<b>6</b>

### Actions

- 1 Meeting current and future water demand
- 2 Protection of wildlife, habitats and historic features
- 3 Decline in fish stocks
- 4 Protection of shellfish beds
- 5 Effects of effluent discharges
- 6 Unknown causes of poor water quality
- 7 Contingency planning
- 8 Recreation
- 9 Effects of farming and forestry
- 10 Development pressures
- 11 Sea level rise and effects of global climate change
- 12 Flood defence
- 13 Waste management
- 14 Air Quality

### Appendices

Appendix 1 Duties, powers and interests of the Environment Agency

Appendix 2 Organisations who responded to the public consultation

Appendix 3 The Quality of Surface Waters

Glossary

Abbreviations

References



## Introduction

The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management. These duties, together with those areas where we have an interest, are described in more detail in Appendix 1. We are required and guided by Government to use these duties and powers in order to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development '*as development that meets the needs of the present without compromising the ability of future generations to meet their own needs*'.

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

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

One of the key outcomes of the United Nations 'Earth Summit' held in Rio de Janeiro in 1992 was agreement by governments that, in order to solve global environmental problems, local action is crucial: we must all therefore think globally but act locally.

### Our aims:

- To achieve major and continuous improvements in the quality of air, land and water
- To encourage the conservation of natural resources, animals and plants
- To make the most of pollution control and river-basin management
- To provide effective defence and warning systems to protect people and property against flooding from rivers and the sea
- To reduce the amount of waste by encouraging people to re-use and recycle their waste
- To improve standards of waste disposal
- To manage water resources to achieve the proper balance between the country's needs and the environment
- To work with other organisations to reclaim contaminated land
- To improve and develop salmon and freshwater fisheries
- To conserve and improve river navigation
- To tell people about environmental issues by educating and informing
- To set priorities and work out solutions that society can afford

## We will do this by:

- Being open and consulting others about our work
- Basing our decisions around sound science and research
- Valuing and developing our employees
- Being efficient and businesslike in all we do

## 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 local 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.

We cannot realise this vision on our own and will seek to work in partnership with local authorities, local industry and local people to turn this vision into reality.

## Environmental Standards

There is a great deal of legislation that determines the way we operate and carry out our enforcement duties. The Environment Act 1995 provides some harmonisation of powers, but we also rely on existing legislation, including the Control of Pollution Act 1974, the Control of Pollution (Amendment) Act 1989, the Environmental Protection Act 1990, the Radioactive Substances Act 1993, the Salmon and Freshwater Fisheries Act 1975, the Water Resources Act 1991, and the Land Drainage Act 1991.

We are the competent Authority for over 25 European Community environmental Directives, whilst a further 70 Directives affect our policies and activities. These include the Quality of Bathing Waters, Dangerous Substances, Industrial Plant Emissions, Waste Management Framework, Quality of Water to Protect Freshwater Fisheries, and the Urban Waste Water Treatment Directives.

Failure to comply with standards has helped us to identify the issues raised in this Plan. Further detail on standards and compliance is available from the address given on the back of this Plan.

## Local Environment Agency Plans

We are committed to delivering environmental improvement at the local level and one of the ways to do this will be through Local Environment Agency Plans. These Plans will reflect our close contact with industry, the public and local government and will contribute towards achieving sustainable development.

The process of drawing up the plans will involve close consultation with all interested parties. It will promote the effective, accountable and integrated delivery of environmental improvement at the local level. The Plans will translate policy and strategy into delivery on the ground and will result in actions, either for the Agency to fulfil, or for others to undertake through influence and partnership. We believe the process will benefit the local community by influencing and advising external decision-makers and public opinion. It will build trust by being open and frank when dealing with all issues.

This Action Plan follows the production of the Seaton Looe and Fowey Consultation Draft and the ending of the consultation period. The Action Plan will form the basis for improvements to the environment and primarily covers the period from May 1999 to April 2003. Achievements of the Action Plan will be monitored and reported annually. Future annual reviews will include new issues as they arise.

## Environmental Themes

The Agency's principal and immediate environmental concerns stated in our national strategy 'An Environmental Strategy for the Millennium and Beyond' relate to nine themes. They are :

- Addressing climate change
- Improving air quality
- Managing our water resources
- Enhancing biodiversity
- Managing our freshwater fisheries
- Delivering integrated river basin management
- Conserving the land
- Managing waste
- Regulating major industry

We will deliver this strategy at a local level by dialogue between ourselves and the various organisations involved in the protection and management of the environment.

## The Steering Group

The Steering Group represents a range of commercial, local authority and environmental interests who endorse the Consultation Report and Action Plan prior to public release. They will monitor the implementation of the Action Plan and provide the Agency with specific advice on the importance of issues within the catchment. They act as a communication link between the local community, the Agency and its committees and will help to promote and develop initiatives of benefit to the environment within the catchment. The Catchment Steering Group will meet once a year during the life of this Plan. They are:

Name	Representing
Mr R Crocker	Roseland Group
Mr W H Eliot	Fowey Rivers Association
Mr S J Gardiner	Westcountry Rivers Trust
Mr M R Gilbard	SWRFDC, Councillor, Caradon DC
Mr I J Goodenough	Bodmin Moor Preservation Society, Hill Farmers
Mr A G Hawken	ECCI
Mr J H Hooper	Lostwithiel Fishing Association
Dr D Lewis	Area Environment Group, Recreation
Mr A Lister	Agriculture, FWAG
Mr N Maiklem	National Farmers Union
Mr R McCawley	South West Water
Mr G Roughton	Caradon District Council
Mr A Smart	Forestry Commission
Mr A Spalding	Cornwall Wildlife Trust
Capt M J Sutherland	Fowey Harbour Commissioners
Mr R S Tabb	Fowey Netsmen
Mr B Muelaner	National Trust

## Review of the Consultation Process

**Public Consultation** – The issues listed in this Action Plan were identified in the Consultation Draft or resulted from the consultation process. The Seaton Looe and Fowey LEAP Consultation Draft was launched on 19th October 1998. The consultation period closed on 26th January 1999. During this time the Consultation Report was promoted by:

- Radio, television and press reports
- Advertisements in local newspapers
- Displays at Looe, Fowey, Lostwithiel and Liskeard libraries, with Agency staff available to answer questions on specified days
- The distribution of over 750 copies of the reports.

**Results of Consultation and Further Action** – A Statement on Consultation was produced in March 1999 and was distributed to all respondents. Copies are available on request from the address at the front of this plan.

Twenty-eight written responses were received, of which nineteen were questionnaire replies. The respondents included statutory organisations, industry, landowners, sport and recreation groups and the public (see Appendix 2).

Our vision for the catchment was shared or fully supported by a large number of organisations. All comments have been considered and, where appropriate, incorporated in the Action Plan. No additional issues have been added but many have been modified in response to the comments received and the negotiations which followed the end of the consultation period.

Suggestions were received regarding the wording and the layout of the Consultation Report. Although we will not republish the report, we will use some of the ideas suggested in future publications.

We asked consultees to list what they felt were the most important issues highlighted in the Consultation Report. The responses indicated that the following were considered the most significant issues:

- Protection of wildlife, habitats and historic features
- Effects of effluent discharges
- Meeting current and future water demand
- Waste management
- Effects of farming and forestry
- Decline in fish stocks

We list actions to tackle these issues, amongst others, in the Action Tables.

## Overview

### Characteristics:

- Exposed windswept granite uplands, rising to tors and clitter slopes on Bodmin Moor. Extensive treeless heathland and wet moorland.
- Numerous broad-leaved wooded valleys, varying greatly in size, generally narrow and densely wooded. Sheltered wooded valleys with fast-flowing streams. Drowned valleys (rias) with wide estuaries.
- Generally a dispersed settlement pattern of hamlets, farmsteads and small fishing villages, with villages mainly of more recent, industrial origin on moorland fringes and valleys.
- Variable field pattern dominated by stone-built Cornish hedges.
- Important archaeological and industrial archaeological sites.

The plan area is based on the catchments of the Rivers Seaton, Looe and Fowey; these drain from the southern slopes of Bodmin Moor to the south coast between Gribbin Head to the west and Seaton Beach in the east. The total area of the catchment is 465 square kilometres. Much of the catchment lies under county or national landscape designations.

The rivers of the area rise on the granites of Bodmin Moor, which is an upland notable for its conservation, landscape and archaeology. The River Fowey catchment includes Colliford and Siblyback Reservoirs, which supply water to a large part of Cornwall. The operation of the reservoirs allows: water to be taken directly from the reservoirs; water to be released into the river and then abstracted downstream; and release of water purely to protect the environmental flow.

The area is essentially rural in character, ranging from open moorland to rolling hills intersected by steep-sided river valleys. There is no heavy industry, but historically there was extensive mining activity, especially in the north of the catchment, which has left its own legacy of abandoned mines and workings.

A small resident population scattered in small towns and villages gives rise to challenges and problems in providing services. An influx of summer visitors to the region changes the pattern of demand for the summer season. Infrastructure such as water supply, sewerage systems and waste management must be designed to cope with both patterns of usage.

Recent and continuing research is showing that climate change is likely to change rainfall patterns in the future. It is expected that rainfall will be less frequent, but when it occurs, it will fall in larger quantities in a shorter time. The small but steep catchments in Cornwall are extremely vulnerable to flash flooding at present and this change could exacerbate the situation.

We monitored 168.5 km of rivers in the Seaton, Looe and Fowey Catchment in 1997 (176.6 km of rivers were monitored in 1996). In 1997, 97.15 per cent of monitored river stretches in the catchment were of good or very good chemical quality and 2.85 per cent of the stretches were of fairly good quality. In biological terms, there was no deterioration in the monitored river lengths. Although water quality has recently improved, there are parts of the catchment where it is not good enough. These shortfalls in quality are discussed in the Environmental Issues section.

## Protection through Partnership

**Working with others** – The Agency is well placed to influence many of the activities affecting the environment, through the Environment Act 1995 and other legislation. Local authorities are responsible for controlling land use, and it is primarily land use change in the long term and the opportunities presented by redevelopment that will tackle the issues of urban runoff, contaminated land and the renewal of river corridors. In addition the support of community groups, individuals, landowners and businesses will be needed to tackle issues such as litter, pollution, private sector investment and river corridor enhancement.

The Agency must work with others to ensure that the actions in this Plan are implemented and that the long-term vision can be realised (Appendix 1 further describes our interests and opportunities for partnership). The Agency is working closely with local authorities in particular. Education also has an important role in changing attitudes and work practices.

There are a range of initiatives by various bodies which at some level affect 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. A number of bodies have produced, or are producing, some form of documentation. 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, being more efficient in our actions, avoiding duplication (or conflict) and making the most of limited budgets.

**Local Agenda 21** – In 1994 the UK government produced a national sustainable development strategy and action plan for the UK. At the local level, most authorities are working with local communities to produce their own Local Agenda 21 (LA21) programmes, to promote sustainable development and to improve quality of life. The majority of district councils have LA21 officers in place. At the heart of the LA21 concept is the idea of “thinking globally, acting locally”. We welcome the opportunity to work with local authorities on Local Agenda 21 matters.

The Agency is keen to be seen as a source of locally based environmental information, and a promoter of environmental initiatives suitable for delivery through LA21 groups. These include initiatives such as “Use Water Wisely”, the Oil Care Campaign, and ideas to promote composting, also supported by County and District Council campaigns. We would welcome the opportunity to work with Local Agenda 21 groups to help deliver some of the actions listed in the activity tables.

**Land Use Planning and Environment Planning** – Land use is the single most important influence on the environment. It follows therefore, that land use change has important implications for the environment, which can be both positive and negative. Government planning guidance highlights the importance of communication between local planning authorities (LPAs) and the Agency, and the relationship between land use and environmental matters.

The control of land use change 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.

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.

The Agency has produced guidelines to local planning authorities on environmental policies and why they are important.

**Shoreline Management Plans (SMPs)** – SMPs are being produced, by a coastal group with statutory interests working together, for the coastline covered within this plan. They provide a forum for an integrated review of coastal processes and sustainable coastal defence policies to set objectives for the future management of the shoreline. The coastal group includes representation from local authorities, the Agency, Cornwall County Council and English Nature.

**South East Cornwall SUSTAIN** – The SUSTAIN initiative is a network organisation co-ordinated by Caradon Forward Planning and Countryside Service, designed to bring together tourism businesses and to assist them through the Green Audit kit. Development of the Green Audit Kit was carried out by the West Country Tourist Board and has now been adopted by the English Tourist Board for national use. The aim of the kit is to allow businesses to audit themselves and achieve a saving in cost and also to improve the sustainability of the tourist industry, whilst making best use of their environment. The Agency acts in an advisory role with the initiative.

**Cornwall Waste Management Forum and Agency waste minimisation promotions** – The Agency liaises with the Cornwall Waste Management Forum, a partnership with the six District Councils and the County Council, and works in collaboration with the Payback organisation in setting up Waste Minimisation Groups. Through our regular contact with businesses we are advising firms on their environmental management systems including waste minimisation.

**Cornwall Air Quality Forum** – The Cornwall Air Quality Forum has been formed as one of 14 pilot areas nation-wide. It is led by Carrick District Council, and has representation from all local authorities in the county and from the Agency. We do not cover all aspects of air pollution but work closely with other regulatory bodies such as local authorities.

**Cornwall Biodiversity Action Plan** – Conservation of habitats and species is co-ordinated through the production of Biodiversity Action Plans (BAPs). This process, which began at the Rio Earth Summit in 1992, enables us and other conservation bodies to prioritise and concentrate our efforts where they are most needed.

The Cornwall Wildlife Trust (CWT), supported by the Agency and other groups, has produced the document 'Cornwall's Biodiversity Volume 1: Audit and Priorities'. This was published in June 1997, and together with digitised habitat, species and land use data for the whole county it will be a powerful tool for use in drawing up priorities for action. The extent of loss of various habitats between 1988 and 1995 can be measured, as can the degree of threat to remaining habitat.

Volume 2, which includes short-listed habitats and species action plans drawn up by expert Focus groups, including plans for the otter and for Bodmin Moor, was published in September 1998.

**LIFE Project** – New development is one of the major threats to semi-natural habitats and the species they support. Cornwall Wildlife Trust, through the LIFE project, are mapping the levels of change in such habitats, and what they have been converted to. The Agency is one of a number of partners in this project.

**Looe VMCA** – Caradon District Council Coast and Countryside Officer was responsible for the establishment of a Voluntary Marine Conservation Area in Looe in April 1994 and has since promoted marine awareness in Looe through a variety of interpretative projects.

The Countryside Service consists of a small team which is part of the Forward Planning and Countryside Services Unit at Caradon District Council. The

Moorland and Countryside Officer based at Minions, and the Coast and Countryside Officer based in Looe, aim to conserve and enhance the beauty of Caradon and to extend the opportunities available for people to enjoy and understand its natural and cultural heritage. The Officers initiate projects in partnership with other agencies and organisations, and also on land that is wholly owned and managed by the District Council. The Agency has provided funding for interpretation boards.

**Fowey Estuary Management Plan** – The Fowey Estuary Management Plan is an integrated non-statutory plan for the sustainable management of the Fowey Estuary, currently being implemented. It has been adopted by all estuary users and regulatory authorities. It seeks to incorporate and complement the duties of statutory authorities operating in the area. The plan covers an area from Gribbin Head to the eastern end of Lantivet Bay; to the tidal limits of the Rivers Fowey and Lerryn; and the hinterland of the river and streams to 5 miles from the centre of the river.

Many activities occurring in the estuary area are the responsibility of the Harbour Authority or local authorities. The plan management group provides a meeting-point for review and common action. Projects include: a proposal for the designation of the estuary as a Voluntary Marine and Coastal Conservation Area (VMCCA). Some areas in the Harbour Authority's ownership are now within the VMCA. These are the Lostwithiel, Pont Pill and Polruan woods zones. At present other landowners are being encouraged to join the scheme.

Investigation into the sedimentary regime of the Fowey estuary is being carried out with a view to reducing sediment inputs into the system from fluvial sources and better management of such inputs within the estuary.

**Environmental Management Partnership schemes** – Schemes exist to encourage appropriate management of biologically rich habitat. Countryside Stewardship, administered by MAFF, various SSSI Management Agreements agreed with English Nature, as well as positive advice on habitat issues by the Agency, FWAG, CWT and others helps to ensure conservation of this natural resource. The Bodmin Upland Experiment Area, which will combine rural economy measures through 5b EU funding and Agri-Environment options through MAFF's Countryside Stewardship Scheme, is an example of partnership working to preserve semi-natural habitat through environmental management. Schemes should target, as a priority, those areas and features noted as priorities in the Cornwall BAP (see Table A).

**Clinical Waste Code of Practice - Sharps Disposal Project** – A partnership between the Agency, Cornwall County Council, District Councils and the Cornwall and Isles of Scilly Health Authority has reviewed and re-issued the Code of Practice for disposal of clinical waste in the county. In response to concerns over the existing provision for disposal of needles and other sharps, this partnership has also initiated a free service for the disposal of these items.

## Actions

The following tables outline the actions needed to address the issues we identified in the Consultation Draft. The issues and activities are not presented in any order of priority.

The tables show the following information:

- Organisations which will implement the proposed activities, either in a lead role or as a key supporter.
- A timetable for the activity.
- An estimate of cost to the Agency over the next five years, where available. The initial 'U' means that no cost estimate is available at present.
- The financial years covered by this plan are represented by a single year, for example, '99' is the financial year April 1999 to March 2000.
- Those actions where we are not currently able to commit resources will remain empty.
- The man-days marked against actions is an indication of the trained resource that is likely to be required to fulfill the action.

In order for the Agency to make the best use of its available resources all work has to be prioritised. This may mean that lower priority work cannot be undertaken at a particular time. However, work identified in the plan can be reassessed should resources become available.

The following points should also 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.

## Issue 1

## Meeting current and future water demand

Water is an essential but finite resource that needs careful management to ensure its availability. We are in a position to help develop public awareness of this issue and guide people towards a more sustainable use of water. Our duties and interests in water resources can be found in Appendix 1.

We have a duty under the 1991 Water Resources Act to conserve, redistribute, augment and secure the proper use of water resources in England and Wales. In fulfilling this role we must also carry out our general duties of environmental conservation and have regard to the statutory obligations of water companies. Water resources development is planned over long timescales to allow sufficient time to meet any forecast potential supply-demand imbalance.

At the water summit in May 1997 John Prescott announced his ten-point plan. Amongst the actions required as a result of this was a review of the water abstraction licensing legislation. The changes proposed by the Department of the Environment Transport and the Regions are set out in the DETR consultation paper 'The review of the Water Abstraction Licensing System in England & Wales' (June 1998). The full nature and impact of changes will not be clear until the final papers are approved by Parliament. We will need to implement any changes that arise from this process and amend licensing policies as appropriate.

**Meeting current demand** – The Plan area is part of the Colliford Strategic Supply Area, which is used to manage water supply in Cornwall. The demand for water in the catchment is currently supplied from a number of sources, dominated by Colliford Strategic Reservoir.

Water supply and demand forecasts up to 2021 for the individual strategic supply areas were published in the NRA's Water Resources Strategy document, 'Tomorrow's Water'. The demand forecasts are based on two scenarios, 'high' and 'low' growth in demand. A deficit has been forecast for Colliford strategic supply area under a 'high' scenario by 2001. As current demand figures are closer to a 'medium', if not the 'low', forecast they indicate that any deficit will not arise until at least 2011. In addition the recent development of the Colliford pumped storage scheme, which the Agency supports as a prudent water resource development, has increased the amount of reliably available water in the strategic supply area in comparison to the figures used in 'Tomorrow's Water'. This may further delay any deficit until later than 2011.

In parallel with OFWAT's current third periodic review the Agency requires water companies to produce a Water Resources Plan for the next 25 years. This will include revised demand forecasts, a review of their resource availability and consideration of any potential resource options to meet forecasted deficits over the next 25 years. This information will enable us to revise the public water supply aspects of our Water Resources Strategy. The internal draft of SWW's plan was submitted to the Agency in June 1998. A national review of all the draft plans entitled "Progress in water supply planning" was published in October 1998. The Agency expects SWW will make public the key aspects of their water resources plan. We expect to publish our revised Regional Water Resources Strategy, covering all aspects of water resource use, during the year 2000, following the outcome of the third OFWAT periodic review by the end of 1999.

In May 1998 the Agency published 'A Price Worth Paying' which sets out the National Environmental Programme – the improvements in the environment that the Agency was seeking in the third periodic review.

**Promotion of water-saving measures** – 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:

- Behavioural measures: turning taps off; washing up in a bowl; taking (low

flow) showers rather than baths.

- Proper maintenance and repair: washer replacement; pipe lagging; rapid repair of leaks.
- Installing water-efficient appliances and fittings: low flush WC cisterns; low flow showers; water-efficient washing machines and dishwashers; water-efficient plumbing.
- Garden water efficiency: water butts; trigger switches on hosepipe nozzles; drought resistant garden plants; mulching flowerbeds.

The workplace and industry also offers many opportunities to reduce water use (and save money). Measures outlined above may be suitable together with process/site specific measures.

Rainwater collected from roofs and recycled household waste wash water (greywater) can be used for toilet flushing or garden watering. It offers potential for large water savings but to encourage more rapid development and take-up of suitable systems there is a need for water quality standards to be established for this use.

The 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.

The Agency is currently investigating the effectiveness and applicability of greywater use. The main factors being considered are the water-saving potential, water quality, customer acceptability and financial viability. An interim report on these trials of greywater systems was published in June 1998 by the Agency's National Water Demand Management Centre. We support any safe and hygienic water-saving measures, which do not have a harmful effect on the environment. We also support further research into innovative water-saving devices such as greywater recycling, which has the potential to save up to 30 per cent of the average domestic water consumption. This and other demand management research is centred at our National Water Demand Management Centre in Worthing.

**Meeting future demand** – The Agency requires the water companies to have satisfied us that they have applied a range of appropriate demand-management and resource-management options, as well as reducing leakage towards an acceptable level, before any further resources can be developed.

Demand management involves a number of different initiatives including metering. Meters are installed in all new domestic properties and customers can have their homes metered at subsidised prices should they opt to. 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. The water companies have a duty to apply and demonstrate efficient use of water within the business and to its customers. In this respect they have published water efficiency plans which contain strategies to encourage water saving by the customer. SWW's plan 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 to save water. SWW also have a free educational resource pack, 'Running Water', for 8-to-13 year olds and the 'Rain Friends' water efficiency project aimed at schools.

More efficient management of existing resources can increase the quantity of water that is available to supply the customer. Both conjunctive use of sources and effective leakage control are key targets here. SWW have set a public leakage target which equates to 15 per cent of overall leakage from the company's pipes by the year 2000 and they are currently on course to meet this reduction.

The Agency is a formal consultee on local authority structure plans. We assess the level of development and comment with respect to the available water resources in the area. We also comment on demand management measures which can be incorporated within new housing developments: for example, low flush toilets, normal showers instead of power showers, normal-pressure hot water as opposed to mains-pressure (the latter has higher pressure and thus uses more water), low water-use dishwashers and washing machines and provision of water butts.

**Non-public water supply abstractions** – The Agency will continue to monitor the net commitment to private water abstractions and to have a regard to the amount of licensed volume take-up and its effects. Future abstraction needs will continue to be addressed through the abstraction licensing procedure.

**Operation of the Colliford Lake and Sibilyback Reservoir Scheme** – These reservoirs are operated in conjunction with other sources, both within the Fowey catchment and elsewhere in Cornwall, to meet the public water supply needs of the county. The impacts on flows in the River Fowey and the St Neot River are mitigated by a compensation water release at all times from the two reservoirs. In addition flows are enhanced at times of low flow by the requirement for augmentation releases to be made to support continuing abstraction at Restormel and Trekeive Steps intakes. These are required when river flow falls below prescribed levels at particular points.

Effective use and conservation of these reservoir resources is achieved by operating them in accordance with a formal Operating Agreement between the Agency and SWW under Section 20 of the Water Resources Act 1991. This includes:

- Control curves based on reservoir storage to ensure conservation measures are brought in at key times.
- Measures to control releases to ensure they do not cause damage to the river environment downstream.

Colliford reservoir also has a fisheries water bank which can be used over a three-year period. The Agency controls the use of water banks and decides how best to utilise this resource in the best interests of the fishery, which has so far been unused. We are currently looking at ways to help salmon in the St Neot River.

SWW have also agreed to incorporate particular restrictions in how they utilise their existing Restormel abstraction licence for pumped augmentation of Colliford. This is documented within the Operating Agreement to ensure it is used effectively but in a way which minimises impacts on the water environment.

Actions	Action By	Cost to Agency		Financial Year				
		(£)	Man days	99	00	01	02	03
Audit SWW's Final Water Resources Plan to be submitted to the Agency by 31 March 1999	Agency, SWW	U		●				
Revise the Regional Water Resources Development Strategy	Agency	U		●	●			
Disseminate information on demand management and water-saving measures in conjunction with the National Waste Survey.	Agency	U		●				
Agree programme of use of the 909 Ml fisheries water bank.	Agency SWW, Fowey River Association	U		●	●	●	●	●

In today's landscape, rivers and wetlands provide refuge for many rare species. The conservation of the quality of rivers and wetlands is therefore vital in this catchment. Current initiatives to classify and describe the area, such as the Wetlands Biodiversity Action Plan (BAP), Regional Biodiversity Initiative and English Nature's Natural Area profiles will help us to prioritise our work, to encourage wise use of environmental resources and to secure sustainable environmental improvements.

Biodiversity simply means variety of life. Within the Plan area there are a range of habitats, wildlife and historic features of importance locally, at a county level, nationally and even internationally. Many of these have some form of designation aimed at their protection.

Conservation in its broad sense should be an integral part of all activities, and many of the issues and proposed actions within this document promote sustainable use of resources, or seek to make up for serious losses or impacts. It is our aim to achieve sustainable use of, and development within, the Plan area allowing us to meet current needs without compromising the environment and the ability to meet our future needs.

A more targeted approach of specific conservation actions is being developed through the 'Cornwall Local Biodiversity Initiative' currently being progressed by a wide range of interested bodies in Cornwall, and through English Nature's 'Natural Areas' Initiative. As part of this initiative the Cornwall Wildlife Trust (CWT), supported by the Agency and other groups, has produced the document 'Cornwall's Biodiversity Volume 1: Audit and Priorities'. This identifies key species and habitats for protection. Volume 2 of the Cornwall BAP includes action plans for the most vulnerable and threatened species and habitats.

Within the plan area the key species and habitats which are particularly relevant to the activities in which the Agency has an involvement are shown in Table A. The table also shows major threats, where known. The table only gives an indication of the key nature conservation features of the catchment. For a full description of habitats and species the Cornwall BAP should be consulted.

Where possible, we will consider the effects on these species and habitats when authorising our consents and licences.

Cornwall Wildlife Trust have carried out analysis of the digitised land cover data as well as the more traditional monitoring techniques such as carrying out field surveys. With this information the causes of habitat and species loss can be assessed. The extent of loss or degradation of habitats between 1988 and 1995 varies between habitat types. Wetland habitat has suffered the greatest loss of all county-wide, with a decrease of over seven per cent during the study period, compared with a loss of three per cent over the last decade for all habitat types. In addition to total loss, habitat quality has become degraded through neglect and fragmentation into smaller blocks.

It is widely believed that by looking after habitat its component species will be safeguarded also. This is true to a degree, but there are some species that need specific help too. An example is the otter, which has returned to the area in significant numbers, following major decline in the 1960s and 1970s. Otters have relatively large territories and cannot be effectively conserved just by protecting a few sites. Measures, such as ensuring acceptable water quality is achieved, and carrying out works at specific locations to prevent road kills, need to be put in place also. The otter will be the subject of its own Species Action Plan. We have helped fund a Wildlife Trust otter project officer in Cornwall who will promote otter conservation throughout the county.

We will carry out surveys every three years on approximately sixty sites on the

Table A: Key habitats and species

Key habitats	Species	Status	Threats
<b>Boundary features</b> e.g. Cornish hedges, ditches	Plants - ferns, Lichens & mosses, Small mammals - dormouse Reptiles - common lizard	National priority	Removal, neglect, poor management
<b>Freshwater</b> Rivers/streams, ponds, watercourses e.g. Dozmary Pool, Fowey - Golitha Falls	Mammals - otters, water voles Fish - salmon, bullheads Plants - Cornish moneywort Birds - dipper, kingfisher	Nationally and locally important	Changes in land use, runoff, fish farming, water abstraction, nutrient enrichment
<b>Estuaries</b> e.g. Looe and Fowey Estuaries	Birds - wading birds, little egret Plants - eel-grass beds and associated species Fish - salmon, bass, smelt and shad	Locally important, some species nationally important	Pollution, recreation, development
<b>Woodland</b> wooded valleys, ancient semi-natural woodland e.g. Cabilla Woods	Insects - Special blue beetle Birds - pied flycatchers Plants - lichens, fungi Mammals - bats	Nationally and locally important	Lack of management, habitat loss
<b>Bodmin Moor</b>	Typical moorland species including golden plover	Nationally important	Recreation, stocking levels
<b>Heathlands</b> Wet & dry e.g. Upper Fowey Valley, Redlake Meadows and Hoggs moor	Plants - heathers, purple moor grass Mosses - sphagnum moss species Invertebrates - dragonflies Birds - lower birds, grasshopper warbler, reed warbler	Internationally important development pressures	Removal, neglect, under-grazing,
<b>Sea cliff and Slope and Coastal Zone</b>	Birds - puffin, peregrine, guillemot Plants - thrift, shore dock. Reptiles - adder Mammal - harbour porpoise	Regionally and locally important	Sea defence, Interruption of natural erosion processes, Intensive agriculture, Recreation, lack of appropriate management

Rivers Seaton, Looe and Fowey and their associated tributaries for rare species including otters, water voles and rare fish in conjunction with our electro-fishing surveys.

Water voles have suffered a sharp decline nationally over recent decades. Their status in this area is uncertain, but there appear to be areas of suitable habitat, or where such habitat might be improved. National species action plans, which include the plan for the water vole are now complete as is the Cornwall Biodiversity Action Plan. We will adopt the recommendations where appropriate.

Riparian birds such as sand martins and kingfishers have high popular appeal; they are vulnerable to loss of nest sites as a result of erosion control works to rivers, as well as adverse conditions either here or in wintering areas. Concern has been expressed at changes in the population and we monitor these changes with the help of other organisations during our three yearly cycle of river surveys. We will ensure all known nest sites are protected during our own work or when authorising the actions of others.

**River Habitat Survey (RHS)** – Organisations such as the Agency, which are involved in the protection and management of water, need to characterise and

classify the physical structure of rivers to operate effectively. The results of surveys can then be used to provide river managers with information needed to sustain and enhance biodiversity, monitor changes in rivers, and for background information in such processes as environmental impact assessments.

The quality of river habitat at a site is assessed by comparison with other similar sites, using criteria derived from known conservation value and from the occurrence of special features (rare features can improve quality). It is based on river channel and corridor features that are known to be of value to wildlife, and improves with the 'diversity' and 'naturalness' of the physical structure. Comparisons can be made with 'pristine' benchmark sites of known conservation value to plants and animals.

Two scores are assigned to each site, Habitat Quality Assessment (HQA) score and Habitat Modification Score (HMS). The HQA score increases with the optimum proportions of positive habitat features and the HMS score increases with increasing proportions of modification features. The overall site quality is based on the HQA and HMS scores, its common 'pristine' channel characteristics, its features of local importance, and its importance as a river type (upland/lowland stream etc.). A final assessment of site quality can then be reached and its level of conservation importance appreciated.

Results from the national baseline survey indicate that the area has a Habitat Modification Score of 9 which falls within the 'obviously modified' category. This category only applies to channel modifications such as bank reinforcement, weirs and outfalls. The major factors that contribute to this score are poaching by livestock which occurred in 39 per cent of the sites, and bank reinforcement that occurred in 17 per cent. Poaching by livestock through inappropriate management appears to be a significant issue throughout Cornwall and there are a number of projects that aim to reduce this problem (Fisheries fencing projects, Bodmin Moor Project, Countryside Stewardship Schemes etc). The rivers in the area have a high occurrence of bank modification. An additional 50 sites were surveyed in 1997/98 and the information obtained will help to clarify the problems and outline possible actions.

The Habitat Quality Score (HQA) is a broad measure of the physical habitat structure of the site and includes channel and river corridor features that are of known wildlife interest such as exposed tree roots as potential otter holt sites and broad-leaved woodland. The LEAP area scored a HQA of 52 which is an average score when compared to similar river types in the national baseline survey. The area had the highest occurrence of broad-leaved woodland in Cornwall (61% of sites) which indicates that the area is important for its extensively wooded river corridors and associated wildlife.

More information about River Habitat Survey, the national baseline survey and how it can be used is available in the Environment Agency publication 'River Habitat Quality - the physical character of rivers and streams in the UK and Isle of Man' Report no.2 1998.

**Wetland creation** – Wetland is a habitat that can be recreated and form a thriving community of wildlife within a few years. In conjunction with our partners in the Cornwall Biodiversity Initiative we are currently identifying sites where wetland creation could be beneficial. We are currently evaluating the need and timing of a training day for planners and developers on the potential of inclusion of wetland habitats in new developments.

**Invasive plants** – As a result of the Japanese knotweed conference on 25th November 1997, organised by the Agency and hosted by the National Trust, a co-ordinated control policy for Japanese knotweed is being developed to try to control the existing areas and prevent further spread. Representatives from County and District Councils, the Agency, the National Trust, Cornwall Wildlife Trust, SWW, ECCI and many more were present at the conference. Our flood

defence maintenance teams have adopted the best practice for the control of Japanese knotweed developed by the group.

We have sponsored a countrywide survey of Japanese knotweed which is being compiled by the Botanical Society of the British Isles, and will be available in a GIS format. Recording forms have been sent in by many local people. A leaflet explaining how to prevent the spread of Japanese knotweed and a recording sheet are available from this office.

Surveys of invasive plant species will also be conducted in the three-yearly summer survey programme - this will help when considering maintenance proposals.

Please see section 'Decline in fish stocks' for action relating to hemlock water dropwort.

**TBT survey of Cornish Coast** – 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 25 metres was prohibited.

The Agency will be studying populations of dogwhelks, *Nucella lapillus*, which are particularly sensitive to TBT. Levels as low as 1ng/l have been shown to induce sex-change effects in female dogwhelks. Chronic exposure to TBT eventually leads to sterility in dogwhelk populations. Studies during 1997 showed a profound impact on dogwhelk populations in the vicinity of the Fal Estuary. The study was expanded during 1998 to survey for evidence of TBT contamination around the Cornish coast, including in the vicinity of the Fowey Estuary. Suitable coastal areas were sampled for the presence of dogwhelks, proof of successful breeding (egg clusters and juveniles) and evidence of sex-change effects in mature specimens. The results are currently being analysed.

**Historic Features** – The Agency has provided funding for a Fowey Estuary Historic Audit in partnership with Cornwall County Council. The audit has gathered crucial information on the archaeological importance of the area. The audit has added approximately 1200 historic sites associated with the Fowey estuary to the Sites and Monuments record. A priority list of conservation sites has been highlighted in the audit to aid action to enhance and protect historic remains that are in a poor state of repair. We will assist in these where appropriate.

**Partnership schemes** – Schemes exist to encourage appropriate management of biologically rich habitat. Countryside Stewardship, administered by MAFF, various SSSI Management Agreements agreed with English Nature, as well as positive advice on habitat issues by the Agency, FWAG, CWT and others helps to ensure conservation of this natural resource. The Uplands Bodmin Moor pilot project, which is seeking EU match funding, is an example of partnership working to preserve semi-natural habitat through environmental management. Schemes should target, as a priority, those areas and features noted as priorities in the Cornwall BAP (see Table A).

The Agency supports Looe and Fowey Voluntary Marine Conservation Areas as these initiatives help to promote sustainable use of the Looe and Fowey estuaries. They provide a useful forum for highlighting the various important issues within a particular estuary and how they might be tackled through partnership schemes and projects.

**Seaton Valley** – The lower Seaton Valley site was acquired by Caradon District Council in November 1995 with a view to creating an amenity and conservation area. Restoration of the valley is already well under way. The Agency has part-funded a feasibility study by the River Restoration Centre who are presently investigating potential areas for restoration in the lower stretches of the river

Seaton. Meetings have been held with interested parties that have influenced the study by considering the long-term concepts and objectives for the area. The feasibility study will provide a number of restoration options that will vary in scale and cost. The final study is due to be available in May 1999.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Implement Biodiversity Action Plan	Biodiversity Action Plan launched in Summer 1998. <i>Note: specific actions can be found throughout this Action Plan.</i>	Agency/ All partners	U	U	●	●	●	●	●
Recreate wetland habitat (including reedbeds) where appropriate	Identify potential small sites (<20ha)	Agency/BAP partners	U						
	Organise training day for planners/developers on potential of wetland habitats.	Agency/ BAP partners	U						
Carry out River Habitat Survey.	Continue to survey the Rivers Seaton Looe and Fowey to assist in the management and enhancement of the area.	Agency	U	U	●	●	●	●	●
	Identify sites and carry out stream habitat improvements from RHS	Agency	20k		●	●			
Fund feasibility study on restoration of lower River Seaton	Implement actions where appropriate from the report	Caradon District Council, Agency	U	10					
Promote eradication of invasive plants species, for example Japanese Knotweed		Agency / others	U		●	●	●	●	●

## Issue 3

## Decline in fish stocks

Natural fisheries are important ecological assets and are also of commercial value for angling and netting. Fish are good indicators of the overall health of our rivers. We use information from our routine population surveys and fishing catch returns to assess the diversity and health of fish populations. Following a research and development project we are currently involved in implementing a classification scheme which will enable us to set targets for the catchment and also to put the fisheries into a national context. Our duties and powers with regard to fisheries are described in Appendix 1.

The River Fowey is noted as a premier game fishery within both Cornwall and the South West of England. As the result of a general declining trend observed in the rod and net catches of both Atlantic salmon (*Salmo salar*) and sea trout (*Salmo trutta*) over the last ten years, a great deal of concern has been expressed with regard to the present and future status of migratory salmonid stocks within the River Fowey. Working in association with the Fowey River Association, the Agency has supported the development of a spawning sanctuary in the Draynes Valley. Investigations are underway to identify measures to protect the water quality of the sanctuary from risks posed by the nearby A30. This may involve the use of oil interceptors and/or constructed wetlands.

The River Fowey has for many years supported a net fishery for migratory salmonids. Within the last twenty years there have frequently been four commercial seine nets operating. In 1997, following the recently renewed Net Limitation Order negotiated by the Agency (1997-2007), the river now only supports two commercial netting licences within the Estuary.

**National decline in salmon stocks** – An assessment of fish stocks carried out by the Agency revealed that salmon catches in England and Wales in 1997 were amongst the worst on record, with the overall level of spawning below that needed to maintain healthy sustainable salmon fisheries.

The Agency is already undertaking action to protect and conserve salmon stocks through the implementation of its national Salmon Management Strategy. Under this strategy, action plans are being produced for every main salmon river in England and Wales and the entire programme will be completed by 2002. Working with other interested organisations, the Agency is taking steps to improve river habitats and water quality, whilst introducing additional controls on fishing and promoting 'catch and release' schemes where these are needed.

New measures, which include restrictions on fishing effort for part of the season, have been discussed in response to independent scientific advice on the state of salmon stocks internationally, given to the North Atlantic Salmon Conservation Association (NASCO) recently. This emphasised the decline in stocks throughout European waters, believed to be linked to changes in oceanic climate, which is putting some salmon populations at risk.

Particular concern was expressed about stocks of multi-sea winter spring salmon (the older, larger salmon, which tend to return to rivers from the sea earlier in the year). It was therefore recommended that immediate action be taken to reduce exploitation. As a result, the contracting parties to NASCO, including the EU, not only reduced the quotas in the Greenland and Faroes sea fisheries, but also agreed to examine further measures to protect stocks in their home waters. The Agency has sought the views of its Regional Fisheries, Ecology and Recreation Advisory Committees (RFERACs) on the need for baseline national action, and the type of measures that should be introduced across England and Wales. Following MAFF's public consultation, the Minister confirmed the byelaws to take effect on 15 April 1999.

In brief, the confirmed national byelaws are as follows:

- Delay in the salmon and sea trout netting season to 1 June; a few specified fisheries (listed below\*) may still net for sea trout before this date though any salmon caught must be returned immediately with the least possible injury.
- Any angler catching a salmon before 16 June must return it with minimum injury.
- Angling for salmon before 16 June can only be with artificial fly or artificial lure (N.B. existing more stringent local regulations will remain in force, such as fly only at certain times on several rivers including the Usk, Wye, Taw, Torridge, Hants Avon and Dee.)
- \*Seine net fisheries on the rivers Dart, Teign, Towy, Nevern, Teifi, Fowey and Dovey;  
Coracle fisheries on the rivers Towy, Teifi and Taf;  
Net fisheries in the Anglian Region; T and J net fisheries in the North East Region.

While we agree there is a national decline we are concerned that factors specific to the River Fowey are also having a significant effect. The Agency has produced a review of the fisheries monitoring data available on both the historic and the current situation. This was received well by Fowey riparian interests and will assist in further investigation within the fishery. The Agency, SWW and the Fowey River Association are discussing an initiative to effect improvements to the Fowey fishery based on sound scientific information. A parallel report, prepared by a consultant independently for the Fowey Rivers Association, has been discussed by the three organisations.

**Influence of Colliford and Siblyback reservoirs on the River Fowey System** – The decline of salmonid fish stocks in the Fowey system has coincided with the development and operation of Colliford reservoir, although the impact of this new flow regime is not conclusively proven. The current and historic electric fishing data on the St Neot would appear to suggest a substantial decline in salmon fry and parr productivity since 1983 and 1985 respectively. This most likely reflects the impact of flow regulation and/or water quality changes within the river following impoundment at Colliford. The decline observed in salmonid populations on the St Neot since 1983 contrasts markedly with other important Fowey salmonid spawning tributaries. However, the low densities recorded in 1997 may in part reflect poor salmonid spawning in the winter of 1996/97 which has been evident on other tributaries within the catchment. In addition there are many other factors that could be affecting migratory salmonid stocks.

Until 1996 the spawning territory lost under Colliford reservoir was mitigated for by a hatchery and stocking programme for sea trout. This was replaced in 1997 with a buy-back of licensed netting time in the Fowey estuary from the beginning of the season until 15th June. It is hoped that this will continue in the future.

A further development that may impact on fish stocks is the fuller uptake of the authorised quantity on the Restormel abstraction licence - including winter pumped storage to Colliford.

There are four issues that require further examination. These are:

- To review the monitoring data gathered since the construction of Colliford, identify any points of concern and suggest actions. Determine if additional information is required and develop a programme of monitoring.
- Make use of the water bank available in Colliford. Review options including a possible trial release to draw sea trout and salmon into the St. Neot system.

- Make a before-and-after study of fish movements using Restormel fish counter in relation to the use of the Pump Storage abstractions. Following this study, a review is needed for winter prescribed flows.
- Investigate the possibility of installing a fish counter on the St. Neot at Craigshill Wood in an attempt to establish the relationship between flow and salmonid usage on the St. Neot.

**Salmon Action Plan** – A Salmon Action Plan for the River Fowey is due to be published in 2000 - 2001. This will implement the National Salmon Management Strategy, which has the following aims: safeguarding the salmon stocks, maximising economic/social benefits and ensuring long-term improvements. The plan will describe the fishery and how it is performing; identify the key issues - limiting the Fowey salmon stock; set fishery targets and fishing effort controls; and outline a programme of improvements. Salmon spawning targets have been calculated and used to review the Net Limitation Order for the Fowey; these will be further refined in the Salmon Action Plan.

**Upper Fowey designation as nursery area and spawning sanctuary** – The Fowey River Association, in partnership with the Agency, have established most of the Draynes Valley as a spawning sanctuary area where there is no fishing. This will prevent the removal of fish that have managed to reach spawning areas and are close to spawning. Restoration of the valley is planned, where the river bed may have been damaged by the A30 road improvements and field drainage. In addition to the spawning area, we are urgently looking at opportunities to create wetlands which will help reduce impacts from A30 runoff. We would like to encourage access to this area for migrating salmonids and will work with interested parties to investigate opportunities.

**Estuaries and Sea Fisheries** – The Environment Agency is the Sea Fisheries Authority within the Fowey and Looe estuaries, whilst under the Salmon and Freshwater Fisheries Act 1975 (SAFFA) the Agency enforces the salmon and sea trout legislation within the estuaries and out to a six nautical-mile limit from the coast.

Within the Fowey Estuary complex there is a bass nursery area, its seaward extremity being a line drawn 270° true from Penleath Point to the opposite shore. However, there is at present no bass nursery within the Looe estuary.

**Natural predation** – Natural predation by birds and mammals occurs throughout the fishery, and is perceived by some to be an issue. At present it is not known if this is having a significant impact on fish stocks. Licences to kill predators are issued by MAFF once a fishery owner proves economic impact. We work with fisheries owners and MAFF to advise on preventative measures. We will not support the licensed killing of predators unless and until proof of serious commercial damage has been established and that such killing is proven to be the most effective means for preventing significant loss to fish stocks.

**Introduction of non-native species** – Within the catchment there are lakes containing a variety of fish species not found within the river system. We are concerned about the occurrence and impact of fish escapees on native species. Alien species have been implicated in the spread of serious diseases and result in the predation of native fish stocks. The Agency actively promotes the "Buyer Beware" policy to fishery owners in an attempt to limit the spread of fish parasites and disease.

**Fish farming** – The fish-farm cages in the Fowey Estuary have been bought out and falls under the jurisdiction of MAFF. The farm is partly being used for fish feed research with the aim of reducing the reliance on fish meal for fish food. This establishment was also working on a vaccine to prevent fish lice on farmed salmonids. Levels of infection by fish lice on the farmed fish were being monitored and controlled, however due to the very low levels of fish lice trials

have been terminated. At present the Agency have no evidence of problems arising from fish farming in the plan area.

**Poaching** – Rigorous and high-profile enforcement within the rivers, estuaries and coast needs to be maintained by the Environment Agency, MAFF and Cornwall Sea Fisheries Committee (CSFC). The Agency endeavours to respond quickly to all reports of poaching, but increasingly relies on information from other bodies and the general public to alert us quickly to poaching incidents. We can then target resources effectively to combat the problem.

**Instream structures** – The Agency is currently working with SWRA (South West Rivers Association) on a joint protocol to achieve appropriate siting of these structures. Whilst benefiting the river by creating deep-water habitats, instream structures may cause flooding, erosion and prevent spawning, if placed in inappropriate locations. We are at present preparing a guidance policy for best practice for the removal of trash dams and other obstructions; however identification and removal of serious obstructions is ongoing.

**Knowledge of fish populations** – We carry out routine juvenile fish surveys on the rivers in the plan area. The most recent survey of the River Fowey system was completed in 1997. A full report on the current and historical status of juvenile and adult salmonid abundance is available from the Bodmin office. The broad conclusions were:

- In general, the 1997 juvenile survey identified that migratory salmonid populations, and particularly salmon, were at their lowest level for many years.
- Historically the St Neot River appears to have been a relatively important spawning tributary for both salmon and sea trout. It is evident that salmon and sea trout spawning, and the subsequent production of smolts, has declined substantially since 1993. Juvenile densities since 1985 have been consistently below those that were achieved prior to that year.
- The Warleggan and Cardinham rivers have recorded their lowest ever salmon fry densities in 1997. The historic survey data from these sites provides evidence of a long-term decline in salmonid densities on these tributaries. A survey in 1998 of the Cardinham and Warleggan Rivers have confirmed that salmon densities remain at a low level. The Agency will undertake a further survey in 1999 in order to monitor the situation.
- The observed decline in juvenile salmon densities is of great concern and is evident throughout the Fowey catchment.

The Agency has installed a fish counter at Restormel. It is in the process of being validated at present; however, the initial indications are that the counter is working effectively. Rod and net catches of salmon and sea trout from the River Fowey can be analysed to look at trends. The declared rod catches indicate that there has been a substantial decline in catches over the last 20 years.

**Potential improvements** – Results from freshwater surveys have indicated low fish densities at some sites, such as reduced salmon fry densities found in the St Neot, Warleggan and Cardinham rivers. We will carry out investigative work when resources allow.

There is a problem with fish passage at Golitha Falls due to the natural barrier under certain flow conditions. Initial assessment has shown that difficulties of providing passage outweighs any potential advantage and will change the character of the river.

The Agency is currently assessing all significant obstructions to fish access throughout Cornwall. As part of this work we will assess the fish passage at

Palmers Bridge and promote appropriate remedial measures.

The Agency is also monitoring the establishment of hemlock water dropwort and facilitating its removal where it occurs in spawning gravels. Initial clearance in the Draynes valley will be followed by a routine clearance every two years. Work has begun on clearing the Warleggan River and one of the sites has already been completed.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Investigate reasons for decline of fish stocks in River Fowey		Agency, SWW, Fowey River Association	U		●	●			
Investigate effects of reservoir operation on the fishery.	Ongoing	Agency, River SWW, Fowey Association	U			●	●		
Produce Salmon Action Plan:	Refine targets level for salmonid fishery population.	Agency				●	●		
Promote creation of wetlands in Draynes Valley to reduce impact of A30 runoff.	Carry out feasibility study	Agency, Fowey River Association	2.5k		●				
Prepare a best practice protocol for positioning of in stream structures.		Agency, SWRA	U		●				
Monitor the spread of hemlock water dropwort and remove it when it occurs on spawning beds	Maintenance as necessary is ongoing on a yearly basis on targeted areas	Agency / Angling clubs / other interested parties	U	4 per year	●	●	●	●	●
Gravel cleaning where siltation is limiting spawning in Draynes Valley	Maintenance where necessary carried out on targeted area in the Draynes Valley	Agency/ Angling clubs	U	4	●	●	●	●	●
Complete validation of the fish counter at Restormel on the river Fowey		Agency	U		●	●			
Installation of a fish counter on the St Neot		Agency	U						
Investigate low juvenile populations	Repeat surveys of the Warleggan and Cardinham Rivers carried out in 1998	Agency	U	●	●				

**Issue 4 Protection of shellfish beds**

Shellfisheries are currently regulated under the EC Shellfish Hygiene Directive (see Appendix 3). The Directive protects consumers of shellfish commercially collected from designated sites but does not offer any protection of shellfish health. The latter is provided by the EC Shellfish Waters Directive, which is the tool for regulating discharges which are potentially harmful to shellfish (see Appendix 3).

Pont Pill, a creek of the Fowey estuary, is used for the production of Pacific oysters and clams. This site is classified under the EC Shellfish Hygiene Directive. In addition Pont Pill has been provisionally classified as a class B relaying area for mussels. (See Appendix 3.)

The DETR consultation on whether waters, including those in the Looe and Fowey estuaries, should be designated under the EC Shellfish Waters Directive is now complete. A decision on whether these waters will be designated is expected from the DETR in Spring 1999. This would offer a greater protection to shellfish and designations would allow discharges causing an impact on shellfish to be improved where required.

**Cockle harvesting byelaw** – The Agency is investigating the option of introducing a byelaw to control the harvesting of cockles. Consultation will take place with relevant authorities and interest groups.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Decision whether to designate waters in the catchment under the EC Shellfish Waters Directive.	Decision on the designation by the DETR is due in Spring 1999.	DETR	U		●				
Investigate the introduction of a cockle harvesting byelaw		Agency	U		●				

## Issue 5 Effects of effluent discharges

Rivers and seas have a natural ability to render the main constituents of many effluents harmless, providing that effluent disposal is properly controlled. Throughout the area there are numerous sites where the Agency consents the discharge of effluent into surface waters (freshwaters, estuaries and coastal waters) and groundwater. Discharge consents only apply to point source discharges: specific, identifiable discharges of effluent from a known location.

Discharges which have the greatest potential to affect the quality of the water environment have numeric concentration limits attached to their consents. These limits may apply to individual substances or to groups of substances and are set at levels needed to protect the environment from harm and ensure compliance with River Quality Objectives (RQOs), EC Directives and International Conventions.

Diffuse sources of pollution, such as agricultural runoff and urban or highway runoff, have to be tackled using other regulatory powers.

**Sewage treatment improvement plans** – The Water Companies' improvement plan for the period 1995-2000 is known as Asset Management Plan 2 (AMP2). AMP2 was developed in 1994 along guidelines agreed between the National Rivers Authority (now the Environment Agency), the Department of the Environment (now the Department of the Environment, Transport and the Regions) the water services companies and the Office of Water Services (OFWAT).

OFWAT is undertaking a review of water prices which will result in a review of improvements required for the period 2000-2005; the outcome of this will be AMP3. The Environment Agency has been reviewing, for agreement with the DETR, those sewage discharges where improvement is required. The DETR have now considered our proposals and have translated these into detailed environmental obligations, where we expect the improvements to take place by 2005. Many of these schemes will be delivered before 2005; the Water Companies are currently preparing their Strategic Business Plans which will confirm the delivery dates of these schemes.

**Looe** – There is considerable local concern over the bathing water failing to meet mandatory standards of the EC Bathing Waters Directive in 1993, 1996, 1997 and 1998. While there may be bacterial loadings other than those from SWW discharges, investigations have shown that the main contributions to bathing waters failures are SWW discharges. The Agency is currently liaising with SWW regarding the honouring of its AMP2 commitment of improvements.

The majority of the improvements to the sewerage system are planned for completion by the end of March 1999 and year-round UV disinfection has been installed at the works.

**East Looe River** – Final effluent from Liskeard Lodge Hill STW (which is marginally breaching its consent) may have contributed to RQO non-compliance in two stretches of the East Looe River. Combined storm overflows (CSOs) at Liskeard and Lamellion Mill may also have contributed to RQO non-compliance in two stretches of the East Looe River. Investigations are currently underway to assess the impacts of these sewage discharges.

**Seaton** – Crude discharge at Seaton Beach may have contributed to failure of the Bathing Waters Directive at this location in 1992. The new Seaton and Donderry STW, which includes secondary treatment and year-round UV disinfection, has been built to protect the compliance of Seaton bathing water with the Directive. SWW are currently appealing to the DETR against a number of conditions in the consent.

**River Seaton** – A combined storm overflow (CSO) which discharges upstream of Menheniot STW works may have contributed to the RQO non-compliance in the Menheniot Stream. Following enforcement action, improvements to the storm overflows have been completed and they are no longer considered to be a problem.

**St Cleer and Pelynt STWs** – We were seeking improvements to St Cleer and Pelynt STWs to protect the long term RQOs of the rivers which the STWs discharge to (see Appendix 3). We expect improvements at St Cleer to be completed in AMP3. Improvements at Pelynt STW were viewed as a lower priority by government and we would not expect them to be completed in AMP3.

**Urban Waste Water Treatment Directive** – The UWWTD Directive 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 eutrophic, or may become so in the future.

The Directive also requires minimum levels of treatment for other sewage effluent discharges. Bodinnick, Golant and Polperro outfalls all require improvements to meet this requirement of the Urban Waste Water Treatment Directive. We are seeking improvements to these outfalls in AMP3; however, any improvements will be subject to funding being approved by OFWAT. Polperro sewerage system is inadequate and in need of repair, resulting in blockages and leaks. We will continue to seek improvements to Polperro sewerage system.

The East Looe river downstream of Liskeard STW is currently being monitored to determine whether it is eutrophic, or may become eutrophic, in which case a sensitive area designation will be sought under the Urban Waste Water Treatment Directive (see Appendix 3).

**Management of private treatment works** – Private sewage treatment plants, especially for sites that have seasonal fluctuations in populations, can have serious environmental impacts on their receiving environments. This is often due simply to a lack of understanding of the function of the systems being used. Basic understanding and maintenance of these facilities could prevent such impacts and the potential for enforcement action from the Agency.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Assess compliance with Bathing Waters Directive	Carry out re sewerage of Looe and improvements to CSOs.	SWW	U		●				
	Determine appeal by SWW against consent conditions at Seaton and Downderry STW.	DETR	U						
Protection of downstream RQO	We expect improvements to St Cleer STW to be completed in AMP3.	Agency / SWW	U						
	Seek improvements to Pelynt STW.	Agency / SWW	U						
	Investigate the impacts of sewage discharges on RQO compliance in the East Looe River	Agency	U		●				
Assess compliance with Urban Waste Water Directive	Improve Bodinnick outfall to meet appropriate treatment level under the EC Urban Waste Water Treatment Directive.	SWW	U						
	Improve Golant outfall to meet appropriate treatment level under the EC Urban Waste Water Treatment Directive.	SWW	U						
	Improve Polperro outfall to meet appropriate treatment level under the EC Urban Waste Water Treatment Directive.	SWW	U						
	Monitor the East Looe River downstream of Liskeard STW to determine whether it is, or may become, eutrophic.	Agency	U		●				
Promote good management of private sewage treatment plants	Produce leaflet to promote care and maintenance of seasonally affected private STWs.	Agency	U		●				

**Issue 6 Unknown causes of poor water quality**

Monitoring under the EC Bathing Waters Directive has indicated a failure at Readymoney Cove beach in 1997 for which we do not know the cause. Failure to comply with the Bathing Waters Directive has occurred at Readymoney Cove in three years since 1990: 1991, 1993 and 1997. The failures to comply in 1991 and 1993 have been attributed to the old sewage system for Fowey. The subsequent completion of the new sewage scheme has remedied these. The 1997 failure, however, resulted from two samples taken during rainfall events in August, and the precise reason for failure is the subject of detailed investigation. The report on this investigation will be published in 1999.

We will prioritise investigations into the reasons for RQO non-compliance. We will investigate all significant failures and persistent marginal failures. Investigations into non-persistent marginal failures will be undertaken where resources allow. The East Looe River from Looe Mills to below Moorswater significantly failed to comply with its RQO due to elevated Biochemical Oxygen Demand (BOD) The cause of this failure is unknown and investigations are planned.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Ensure compliance with EC Bathing Waters Directive and RQOs	Investigate causes of non-compliance on East Looe River.	Agency	U		●				

## Issue 7 Contingency planning

There is a need to review existing contingency plans to enable rapid and effective response to an oil spill (hazardous cargo) incident. Such potential spills could come from land or water-borne sources inside or outside the estuary. Although those responsible have an existing contingency plan, it needs to be reviewed and the measures strengthened.

**Oil spills** – Looe and Fowey Harbour Masters will be drawing up a new contingency plan soon, following which a working group comprising Harbour Commissioners, English Nature, the Environment Agency, District and County Councils will be established. Sensitivity mapping of features requiring protection will be produced and booming points agreed upon. Principal areas for future development include:

- Sensitivity mapping
- Agreeing clean-up methods - highlighting areas vulnerable to oil spills and proposing appropriate clean-up methods
- Agreeing on the location of booming points and planning a booming exercise to test these
- Contingency planning - setting out agreed courses of action under different circumstances and as appropriate, to be drawn up after booming exercise.

**Eclipse 1999** – Cornwall County Council anticipates that there will be a large number of additional visitors to Cornwall to see the Solar Eclipse on 11 August 1999. While the duration of the Eclipse is only a few minutes, there may be substantial numbers of additional visitors in Cornwall for around three weeks (31 July to 21 August), who are planning to see the Eclipse as part of a longer holiday.

The County have established a steering group, and a number of working groups to allow representatives from the emergency services, statutory bodies including the Environment Agency, utilities and the tourist industry to plan for the Eclipse.

The Eclipse is seen as an opportunity to promote tourism and generate additional income for Cornwall, with the establishment of substantial numbers of temporary camp sites to accommodate additional visitors. Although the Agency recognises that additional visitors represent an economic opportunity for Cornwall, we are also concerned that such an increase in population poses a real threat to the environment of Cornwall. This is in terms of both managing and disposing of waste appropriately, and the threat posed by possible over abstraction of private water supplies to augment mains water supplies and the use of unlicensed sources. Following the floods of Easter 1998 in the Midlands and Wales we are also very concerned about the safety of people on campsites close to watercourses, which may be at risk of flooding.

Our primary duties are to use our statutory powers to protect the environment, and to protect people and properties from flooding. We are planning to use our regulatory powers to secure these objectives for the time period of and around the Eclipse.

We have adopted this approach for the following reasons:

- Without careful management, there is potential for environment damage to occur both during the Eclipse period and in the longer term;
- The environment of Cornwall is extremely important to the economy of Cornwall, both the rural economy and the tourist industry; for example

bathing waters and fisheries must not be affected by discharges failing consent standards, or illegal discharges;

- The interests of existing water users, whose livelihoods or health may be affected, must be secured; for example, by ensuring that there is sufficient water supply for livestock watering; protection of the quality of private water supplies;
- The unique ecology of Cornwall must be protected, including sites which have statutory designation.
- The safety of people in flood risk areas should not be compromised.

**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.

Actions	Tasks	Action By	Cost to Agency		Financial Year					
			(£)	Man days	99	00	01	02	03	
Develop contingency plans for oil spill emergency action.		Harbour Authorities, Agency, EN, Councils	U							
Ensure that important areas for wildlife, including seabirds, receive appropriate protection in management initiatives, contingency planning, etc	Identify oil sensitive sites to enable appropriate location of booming points in conjunction with Cornwall County emergency services	Agency / BAP Partners	U			●				
Develop contingency plans to deal with potential increase in visitors during eclipse.	The Agency will use statutory powers to protect the environment and to protect people and property from flooding	All relevant authorities	U			●				
Promote education and campaigns to highlight pollution prevention measures throughout industry and at home.		Agency	U							

## Issue 8

## Recreation

Many people enjoy water areas such as rivers, canals, still waters and the coast for a variety of activities. Water related recreational activities including sailing, angling, cycling, bird watching, walking, canoeing, water-skiing and surfing.

Sustainability is an underlying theme to the activities of the Agency and we will balance the promotion of recreation and management with the needs of other interests, such as wildlife.

There are a number of key organisations with an interest in countryside and water recreation and we will work in partnership where appropriate to achieve the greatest results. We will meet locally with these interested parties such as the British Canoe Union, Countryside officers and the National Trust to ensure that sustainable recreation issues and actions within the Seaton Looe and Fowey area are fully discussed and considered.

There is widespread recreational use throughout the catchment, with a large proportion based on or around the water. Much of this can be absorbed without unacceptable impact on the environment or conflict between competing uses. However, instances do occur where recreational activities need to be more carefully managed.

**Fowey Estuary Management Plan** – Most of the issues arising from recreational pressure in Fowey area are dealt with in the Fowey Estuary Management Plan. The Agency supports projects where appropriate and sits on the steering group for the plan. One example of these initiatives is the promotion of access for the disabled to the estuary. This joint project between the Agency, Fowey Harbour Commissioners, National Trust and Lostwithiel Town Council aims to enhance disabled access to areas of the Fowey estuary including Coulson Park, Ethy Woods and Fowey. At present a proposal is being drawn up and funding is being sought.

**Fowey Estuary Interpretative Strategy** – The Fowey Estuary Partnership has placed a China Clay Area LEADER bid to fund interpretation projects in the area. These include

- Visitors information panels at main car parks and quays.
- Maritime heritage information panels.

The strategy aims to

- Enhance visitor experience and enjoyment of the area.
- Promote appropriate local tourist attractions, including boat trips and regular guided walks.
- Assist the development of sustainable tourism.

The Fowey historic audit included a number of recommendations, including archaeological interpretation proposals and the possible creation of a Fowey Interpretation centre. The Agency will assist in the funding of interpretation proposals where appropriate.

**Looe to Liskeard Union Canal** – Whilst much of the canal has disappeared or is overgrown, approximately 70 per cent is still visible and many of its features survive along its length. There have been many other successful canal restoration schemes and it may be possible to rewater surviving sections of the Liskeard to Looe Union canal. It would be of particular interest to rewater parts that have features such as locks.

A feasibility study is currently being undertaken by The British Waterways Association, which is considering all aspects of the conservation of this canal and the potential to increase local income through sustainable recreation of the canal corridor. The project aims include :

- Where possible, restore and conserve surviving canal features, and associated features within the corridor
- Foster an understanding and appreciation among visitors of the rich industrial heritage
- Enhance the wildlife habitats along the corridor
- Promote recreational routes along the corridor
- Identify opportunities for interpretation that promote the industrial and cultural heritage of the area.

Such a project will have implications on water resources and flooding risks. We welcome close liaison to ensure these aspects are fully considered in the feasibility study.

**Cycleways and footpaths** – The sustainable transport organisation Sustrans is developing a series of traffic-free routes across Britain. We are supportive of new routes where they can be managed without adverse effects on the environment or other users, and will assist whenever possible through, for example, providing bridges where they currently do not exist. The Agency provides advice on the appropriate use of walks alongside rivers and canals.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Promote sustainable methods of managing recreation	Consider appropriate measures to limit damage to wildlife through recreational activity such as zoning of motorised watercraft and educational campaigns	Agency/ BAP partners	U		●	●	●	●	●
	Promote the river call information service - which gives the levels of certain rivers, including the River Fowey.	Agency	U	U	●	●	●	●	●
Feasibility of Liskeard to Looe Union Canal study	Implement actions where appropriate from the report	CDC / British Waterways / Agency	U	U					
Support the Estuary Management Plan and its actions.	Promoting access to Fowey Estuary for the disabled.	Fowey Estuary Management Plan steering group	U						
Fowey Estuary Interpretative Strategy	Implementation of appropriate recommendations from the Fowey Estuary Interpretative Strategy	Caradon & Restormel District Councils, Cornwall County Council, Agency, Fowey Estuary Partnership	U						

## Issue 9 Effects of farming and forestry

Agriculture covers the majority of the Plan area, from moorland hill farms on Bodmin Moor to mixed and dairying in the more sheltered areas towards the coast.

**Farming** – There is a declining trend in the numbers and severity of pollution incidents relating to farming. This has resulted from the extensive, proactive pollution prevention work carried out by the former NRA and the subsequent positive response from the farming community.

However, farming may have an impact on water quality and habitats within the catchment. For example, farming practices may have contributed to RQO failures in the River Seaton, Trebant Water, River Lerryn and Bedellva Stream (see Appendix 3).

**Silt** – We are concerned over the effects of silt on the fishery. Silt can come from many sources including agricultural and forestry activities particularly bank and bed erosion and runoff. Other sources include mineral extraction and quarrying. We need to assess the impact on eggs and young stages of fish. As a precautionary measure we need to identify and reduce silt inputs. The Agency and other bodies work in partnership with farmers and industry to identify and put into place management techniques in sensitive locations to reduce loadings of silt from the various sources.

**Sand** – We are concerned over the effects of sand on the fishery and on the whole ecology of the river. Some sand may occur naturally but there is concern that land management activities can cause significant quantities of sand to enter the river. Although generally not thought to affect egg survival at low levels, large quantities can submerge weed, invertebrates and spawning gravels, causing damage to the ecology. We are currently investigating the possibility of prosecuting where activities cause these impacts. However, we prefer to work with farmers and land managers to prevent such damage from occurring.

**Forestry** – Well managed woodlands in the right places do not harm the water environment and will often bring benefits. However, in certain circumstances forestry development and management can cause problems. Areas of concern to the Environment Agency include acidification, soil erosion, pollution, water yield, increased flooding risks and damage to wildlife.

There are major commercial woodlands in the Glynn Valley area. Pollution risks to the water environment from forests within the Plan area comes primarily from poor harvesting techniques. A code of practice, 'Forest and Water Guidelines', was published by the Forestry Authority in 1993 and sets out ways to minimise such risks.

**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 have been widely advertised and the Agency would encourage the earliest possible contact with potential applicants.

**Upland Bodmin Moor Project** – The Agency is a partner in this project with MAFF, which seeks to promote conservation of wildlife and archaeological features with sustainable economic development on the farms of Bodmin Moor. We support the aims of the project particularly when changes in land use give ecological benefit to the River Fowey catchment.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Promotion of Code of Good Agricultural Practice for the Protection of Soil, particularly in conjunction with changes of land use and crop patterns.	Promote good practice through day to day work, to work towards RQO compliance.	MAFF, Agency	U		●	●	●	●	●
	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, FWAG, WRCT, Fowey Harbour Commissioners	U			●			
	Work with farmers and landowners, particularly as part of the Bodmin Moor pilot, to develop economic and environmentally sustainable farming.	Agency/ MAFF/ CCC/ farmers/ EN/ others	U			●	●	●	

## Issue 10 Development pressures

Land use is the single most important influence on the environment. It follows, therefore, that land use change has important implications for the environment, which can be both positive and negative. Government planning guidance highlights the importance of communication between local planning authorities (LPAs) and the Agency, and the relationship between land use and environmental matters.

The control of land use change 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 in Appendix 1.

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 Agency would wish to comment on a plan detailing this enhancement and would suggest that a streamside zone of at least 7 metres be set aside for this purpose.

The Agency has produced guidelines to local planning authorities on environmental policies and why they are important.

**Sustainable development** – In 1987, the World Commission on Environment and Development (the Brundtland Commission) defined sustainable development as that *which meets the needs of the present without compromising the ability of future generations to meet their own needs.*

Sustainable development brings together four principles - environmental protection, providing for the future, quality of life, and fairness - to create a new policy, which integrates environmental, developmental, social and economic concerns. One of the primary reasons for setting up the Environment Agency was to provide a means of helping the government deliver its sustainable development strategy. Section 4 of the Environment Act (1995) defines the Agency's aims and states that *the minister shall give statutory guidance on objectives and the contribution to sustainable development.* Guidance has been published by the Department of the Environment; the key elements are that the Agency should:

- Take a holistic approach to the protection and enhancement of the environment
- Take a long-term perspective
- Maintain biodiversity by exercising its statutory obligations with respect to conservation
- Discharge its regulatory functions in partnerships with business in ways which maximise the scope for cost-effective investment in improved technologies and management techniques
- Provide high quality information and advice on the environment.

We will take forward these key elements by holistic environmental management, including this LEAPs process.

**Consultation guides** – The Agency produces consultation guides for each local planning authority which contain our recommendations for development restraints on environmental grounds. Planning authorities are encouraged to adopt the guides as policy. Consultation guides are revised and updated annually.

**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. The aim is to ensure that flooding risks that might arise from a development are recognised and made an integral part of the decision-making process undertaken by local planning authorities. Flooding and drainage issues are also to be taken fully into account during the preparation of land use development plans. In this respect we have responsibility to prepare surveys under Section 105 of the Water Resources Act 1991 to define the nature and extent of flood risks. The initial Section 105 survey for main river (see Glossary) in the Plan area was completed in 1997 and has recently been updated as part of the recommendations from the Bye Report. This will be supplemented by further, more detailed studies in areas where there are particular development pressures.

**Sustainable surface water 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 of surface water runoff. These would help to replenish groundwater as well as reduce the erosion potential in watercourses; however, their use must be site specific. We inform developers and planners of these concepts through the provision of advice and information, including good practice guides on sustainable drainage.

**Review of old mineral permissions** – The Environment Act 1995 introduced new requirements for Mineral Planning Authorities to carry out an initial review and updating of old mineral planning permissions and the periodic review of all mineral permissions thereafter. The broad aims of the review are to provide for improved operational and environmental practices and for the appropriate restoration of mineral sites through updated planning conditions - although the nature of the new conditions will be constrained by a liability to pay compensation where they unreasonably prejudice the economic viability or the asset value of active mineral sites.

The Agency is a consultee in the process of determining new conditions, and this will require a thorough assessment of each site. Often sites, particularly those which have been dormant for many years, are of valuable nature conservation and archaeological interest. Clearly, many sites will be of geological interest, and may also have implications for surface and groundwater resources and quality. It is important that appropriate conditions are put in place to protect these interests.

**Wildlife** – New development is one of the major threats to semi-natural habitats and the species they support. The Agency aims to protect features of significant conservation and ecological value through all the Agency's regulatory and internal consultations.

Cornwall Wildlife Trust, through the LIFE project, are mapping the levels of change in semi-natural habitats, and what they have been converted to. The foreshore is a specific area subject to frequent development pressure in this catchment. We seek to prevent such areas being lost through development, as this results in a loss of wildlife habitat and can have adverse effects on currents and sedimentation patterns within estuaries as a whole.

When commenting on planning applications, the Agency will normally request that a marginal strip of land of approximately 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.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Review areas that are vulnerable to increased development	Produce annual consultation guides for District Councils	Agency	U		●	●	●	●	●
Promote the adoption of development restraint areas.	Present revised consultation guides to planning committees and explain reasons for the need for development constraint	Cornwall County Council, District Councils	U		●	●	●	●	●
Promote source control techniques and Best Management Practice.	Agency is developing National Policy on source control and will promote it for inclusion in planning policy	Agency	U		●	●	●	●	●
Control or minimise disturbance of former mining sites via planning procedures.		Cornwall County Council	U		●	●	●	●	●

**Issue 11 Sea level rise and effects of global climate change**

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 5 mm/year until the year 2030 and 7.5 mm/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. An annual review of the condition of existing sea defences is undertaken.

**Flooding** – We plan for a rise in sea level when constructing new defences and raise existing defences where practicable. Future flood defences at Looe, for example, will have allowances for sea level rise included. The forthcoming Shoreline Management Plan (SMP) will recommend preferred options for the management of coastal defences, taking into account such changes.

**Ecological impacts** – Intertidal habitats may be lost, unless they are re-created naturally or through human intervention. Any intervention could have knock-on effects for other fringing habitats. Assessment of the potential for preservation or re-creation at different locations, and the consequences of each, needs to be carried out.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Make recommendations for the management of defences through SMP process.	The draft SMP for the south Cornwall coast is underway and is due for completion in April 1999.	Coastal group	4k	10	●				
Identify sites vulnerable to habitat loss through SMP process	The draft SMP for the south Cornwall coast is underway and is due for completion in April 1999.	Agency, Local Authorities, MAFF	U		●	●			

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 1.

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. Local authorities have similar special powers for flood defence on ordinary watercourses.

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, there has been a recent example of a successful bid for European funding.

When we design management systems for our flood defence work we fully consult conservation bodies. All options are explored when designing new schemes including flood storage in wetlands if possible.

**Bye Report 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. This investigation was carried out by Peter Bye and his technical advisor Dr Michael Horner and the report is known as the Bye report. In a Parliamentary Statement on 20 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 is required to undertake a thorough review of the whole system by mid-1999 to ensure the Agency 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 Report with the findings of the Agriculture Select Committee on Flood and Coastal Defence 30 July 1998 and comments from MAFF, have drawn up a comprehensive action plan.

The action plan will be implemented nationally over the next eighteen months. The plan includes the following actions:

- Review of flood warning dissemination plans and major incident plans
- Review current supervisory duties and develop new approach to their use.
- Review and publish consistent flood risk maps for use in regulating development.
- 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.
- Introduce improvements in the Agency network of telemetered river flow monitoring.

- 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.
- Revise the Agency's National Flood Warning Strategy and establish a national flood warning centre.
- Review ways of warning the public, improve provision of data from telemetry systems and its use in giving warnings.
- Target flood warning communications at vulnerable temporary locations such as caravan and camping sites.
- Work with Government to review research into the impact of climate change on flood frequency.

In general, the South West region is further advanced than other regions in dealing with the issues raised in the actions listed above. However, a very large additional workload is still required to meet these actions.

As part of the actions listed under the Bye Report, we are carrying out a survey of all the sites used for flood warning to determine if they are capable of measuring the 1-in-100 year flood. The survey is programmed to be completed by the end of April 1999. Following the results of this a programme of improvements will be drawn up to ensure that the stations are able to measure a 1-in-100 year flood.

**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. The Major Incident Plans are scheduled to be completed by Summer 1999.

**Flood Warning Level of Service Study (FWLOSS)** – Leaflets are available showing the main rivers and coasts where a flood warning service is provided. At present flood warnings are not issued for the main rivers in the Plan area.

The Flood Warning Level of Service Study for the Cornwall area commenced in April 1999 and is due to be completed by August 1999. The results from this study will 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.

**Flood alleviation schemes** – Schemes at Fowey and Looe are included within the Medium Term Capital Programme. Before these schemes can be progressed each will have to be justifiable on cost-benefit grounds. The timing of the schemes will also be dependent on funding provided via Cornwall County Council and MAFF; therefore the start dates included in the action tables should be considered the earliest opportunity for work to commence. Detailed consultation with affected landowners and interested bodies will take place well in advance of any work taking place.

**Status of current schemes** – Fowey: A pre-feasibility study has been completed and a report prepared. However the planned earliest start date for the works of 1999/2000 has been postponed until 2003 - 2004.

Looe: The current proposed earliest start date for the flood alleviation schemes is 2003 - 2004.

Lerryn: We are currently reviewing how we could fund this scheme.

Improvements to the bridge at Courtneys Mill to cope with higher flows are to

be funded by the developer's contributions and therefore the timing of the works is unknown.

**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 and dredging.

The cost of maintenance varies each year depending on need; it is generally in the order of £50,000. Annual conservation liaison meetings are held to outline our maintenance programme to external conservation bodies. Each year within this programme some conservation enhancements and recreational improvements are carried out.

Actions	Tasks	Action By	Cost to Agency		Financial Year					
			(£)	Man days	99	00	01	02	03	
Reduce flooding through construction of flood alleviation schemes at:	Fowey	Agency	162 k							●
	Looe	Agency	540 k							●
Determine future flood warning strategy and programme.	Complete Flood Warning Levels of Service Study	Agency	10 k		●					
	Implement improvements as regional priority list	Agency	U							
	Complete Tidal Flood Warning Level of Service Study	Agency	10 k			●	●			
	Implement improvements on regional priority list	Agency	U							

## Issue 13

## Waste management

Household, commercial and industrial wastes can be potentially polluting if not correctly managed. Certain particularly harmful materials are designated as 'special wastes' (see Glossary) and 90 per cent of these are exported from Cornwall for specialised treatment or disposal elsewhere at purpose-built facilities.

With the exception of household wastes, for which closely monitored collection and disposal contracts are in place, there is only sparse information on the types and quantities of wastes generated in Cornwall. Some estimates are being made as part of Cornwall County Council's waste management strategy in their Waste Local Plan for the county. The Agency is to produce a Strategic Waste Management Assessment for the Region, based on an analysis of the waste production survey and taking account of the proposed Statutory National Waste Strategy. This will be produced in 1999 with an intended publication date early in 2000.

The Government has stated its intention to redefine mining, quarrying and agricultural wastes as 'controlled wastes' to be formally regulated by the Agency.

**Provision of waste facilities** – The County Council's Waste Local Plan for Cornwall will identify the criteria for the provision of sufficient and adequate facilities, as guidance to potential operators and to direct planning policy. Specific proposals will then be vetted by the County Planning Authority in consultation with the Agency. Due to pressures on facilities, including lack of landfill space, Cornwall County Council has had to embark on the production of a local Waste Strategy for consultation, ahead of national and regional plans.

There is an established hierarchy for planning of waste, from national strategy to regional and local planning. There is a requirement from the Agency to produce a regional strategy to outline the current and future needs for waste management. This work will be undertaken in two distinct phases; first, data on current requirements will be collected in a waste arisings survey. This information will also feed into the national strategy. The second stage is the production of the regional strategy. The survey will be completed in the summer of 1999.

**Cornwall Waste Management Forum and Agency waste minimisation promotions** – The Agency is a member of the Cornwall Waste Management Forum, a partnership with the six District Councils and the County Council, which works in collaboration with the Payback organisation in setting up Waste Minimisation Groups. Through our regular contact with businesses we are advising firms on their environmental management systems, including waste minimisation. The Agency has produced a Commercial Recycling Directory that will assist businesses in identifying recycling outlets for recoverable wastes. In time this will stimulate a need for new treatment and recovery facilities locally, to provide a more sustainable alternative than just landfill disposal. These waste minimisation initiatives have enabled many companies to discover opportunities for cost savings whilst changing their approach to waste and other emissions.

**Connon Bridge Landfill** – The Agency has issued a consent to discharge for treated leachate to the Connon Stream.

**Waste spreading to land** – Certain controlled wastes may be spread on land where an agricultural benefit or ecological improvement can be demonstrated. On 31st December 1998, the disposal of sewage sludge to sea was prohibited by the EC Urban Waste Water Directive, thus increasing disposal to land. 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
- Present risk to water, air, soil, plants or animals

- Cause nuisance through noise or odour
- Adversely affect the countryside or places of special interest.

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

We will continue to ensure that operators use good management practices and use existing codes to minimise the risk of pollution.

**Landfill Tax** – The Landfill Tax was introduced in October 1996 and is payable by landfill operators to HM Customs & Excise for waste deposited in landfill sites. The tax is £10 per tonne for general waste from the 1st April 1999, the tax for inert materials will remain unchanged at £2 per tonne.

**Fly-tipping** – Fly-tipping occurs throughout the area, including hotspots in the Looe Valley and on Goonzion Downs. We will work with district councils to prevent further fly-tipping through publicity campaigns and enforcement.

**Producer Responsibility for Packaging Waste Regulations** – The Producer Responsibility for packaging Waste Regulations which became law in 1997 set targets for the recovery and recycling of packaging waste. The current targets are under review, but in order to comply with European requirements the targets for 2001 are 52% recovery with 16% of this recycled. These targets will provide a powerful stimulus to the development of an improved level of recovery over the next three years. All businesses which fall within the regulations must either register with the Agency or join a business membership scheme. The Agency is the regulatory body for this legislation and offers advice on the regulations and their implementation.

**Harbour waste management plans** – The development of harbour waste management plans for Fowey and Looe are currently being progressed by the harbour authorities. The Fowey Harbour Commissioners have put into place an number of actions such as waste disposal facilities for visiting yachts.

Actions	Tasks	Action By	Cost to Agency		Financial Year					
			(£)	Man days	99	00	01	02	03	
Identification of new waste management sites through consultation on Cornwall Waste Local Plan.	Advise planning authorities and waste management companies on Agency requirements.	Cornwall County Council, waste management companies	U							
Encourage recycling facilities	Seek to ensure Agency interests are considered in local authorities promotions	Local Authorities / Agency	U		●	●	●	●	●	
Promote waste minimisation	Seek to ensure Agency interests are considered in Local Authority promotions	Local Authorities/ Agency	U		●	●	●	●	●	
Enforcement against fly-tipping, particularly in Looe Valley and Goonzion Downs.	A proactive series of inspections for these areas has been undertaken	Agency / district councils	U							
Campaign to highlight fly-tipping problems.	Where opportunities arise	Agency	U							

**Issue 14 Air quality**

**Background** – Air pollution may be in the form of gas or particulate matter. Its dispersion and dilution depends on the nature of the pollution and the climatic conditions. Its impact may be local, especially with regard to particulate matter which will often settle on nearby land or water; or it may be global, for example affecting the ozone layer or the concentrations of greenhouse gases such as carbon dioxide. It is vital that we protect the air since the future health of mankind and the environment depends on it.

We do not cover all aspects of air pollution but work closely with other regulatory bodies such as local authorities. Our duties and powers with regard to air quality are described in Appendix 1.

We will also ensure that vulnerable species that can be affected by changes in air quality, for example, lichens, are fully considered before authorising any licence that may affect air quality such as IPC authorisations or Mineral Planning Permissions.

The Cornwall Air Quality Forum has been formed as one of 14 pilot study areas nation-wide. It is led by Carrick District Council and has representation from all local authorities in the county and from the Agency. The forum co-ordinates the actions of regulatory bodies in Cornwall with regard to the National Air Quality Strategy.

Actions	Tasks	Action By	Cost to Agency		Financial Year				
			(£)	Man days	99	00	01	02	03
Co-ordinate the actions of local authorities in Cornwall with regard to the National Air Quality Strategy.	Hold regular co-ordination meetings.	Cornwall Air Quality Forum	U	6	●	●	●	●	●

## Appendices

### Appendix 1: 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 :

- Noise problems (except if it is to do with our work)
- Litter (unless it is restricting the flow of a river)
- Air pollution arising from vehicles, household areas, small businesses and small industry
- Collecting waste in your local area
- Planning permission
- Environmental health
- 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
<p><b>Water Resources</b></p> <p>The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.</p>	<ul style="list-style-type: none"> <li>● Grant or vary water abstraction and impoundment licences on application.</li> <li>● Revoke or vary existing licences to reinstate flows or levels to surface-waters or groundwater which have become depleted as a result of abstraction, and are subject to a liability for compensation.</li> <li>● 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.</li> <li>● Monitor and enforce abstraction and impoundment licence conditions.</li> </ul>	<ul style="list-style-type: none"> <li>● The more efficient use of water by water companies, developers, industry, agriculture and the public and the introduction of water-efficiency measures and suitable design and layout of the infrastructure.</li> </ul>	<p>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.</p>
<p><b>Flood Defence</b></p> <p>The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.</p>	<ul style="list-style-type: none"> <li>● Control, through Land Drainage consents, 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).</li> <li>● Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991.</li> <li>● Undertake works to main rivers using permissive powers.</li> <li>● Issue flood warnings relating to main river to the public, local authorities and the police.</li> <li>● Consent mineral workings within 16 metres of main rivers.</li> </ul>	<ul style="list-style-type: none"> <li>● Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by local planning authorities.</li> <li>● Installation of surface water source control measures e.g. flood attenuation structures.</li> <li>● Supervising the maintenance of ordinary watercourses which is a local authority remit, but may impact on main rivers.</li> <li>● Installation of buffer zones which reduce flood risk and have significant environmental benefits.</li> <li>● Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance.</li> </ul>	<p>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.</p> <p>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.</p> <p>The Agency works with the civil authorities to prepare flood-warning dissemination plans and supports their endeavours to protect communities at risk.</p>

<b>Agency Duty</b>	<b>The Agency has powers to:</b>	<b>The Agency has an interest (but no direct powers) in:</b>	<b>Partnership</b>
<p><b>Water Quality</b></p> <p>The Agency has a duty to monitor, protect, manage and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.</p>	<ul style="list-style-type: none"> <li>● Issue discharge consents to control pollution loads in controlled waters.</li> <li>● Regulate discharges to controlled waters and into or onto land in respect of water quality through the issue and enforcement of discharge consents.</li> <li>● Prosecute polluters and recover the costs of clean-up operations.</li> </ul>	<ul style="list-style-type: none"> <li>● The control of runoff from roads and highways. This is a Highway Agency duty.</li> <li>● The greater use of source-control measures to reduce pollution by surface-water runoff.</li> <li>● Prevention and education campaigns to reduce pollution incidents.</li> </ul>	<p>The Agency will liaise with local authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source-control measures As a statutory consultee on planning applications, the Agency will advise local planning authorities on the water-quality impact of proposed developments.</p>
<p><b>Air Quality</b></p> <p>The Agency has a duty to implement Part 1 of the Environment Protection Act 1990.</p>	<ul style="list-style-type: none"> <li>● Regulate the largest technically-complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO.</li> <li>● Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes.</li> </ul>	<ul style="list-style-type: none"> <li>● The vast number of smaller industrial processes which are controlled by local authorities.</li> <li>● Control over vehicular emissions and transport planning.</li> </ul>	<p>The Agency provides data on IPC processes and advice on planning applications to local authorities. The Agency is willing to offer its technical experience to local authorities on the control of air pollution The Agency wishes to liaise with local authorities in the production of their Air Quality Management Plans. The Agency will advise and contribute to the government's National Air Quality Strategy</p>
<p><b>Radioactive Substances</b></p> <p>The Agency has a duty under the Radioactive Substances Act 1993 to regulate the use of radioactive materials and the disposal of radioactive waste.</p>	<ul style="list-style-type: none"> <li>● To issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public.</li> </ul>	<ul style="list-style-type: none"> <li>● The health effects of radiation.</li> </ul>	<p>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.</p>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership
<p><b>Waste Management</b> The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities.</p>	<ul style="list-style-type: none"> <li>• Vary waste management licence conditions.</li> <li>• Suspend and revoke licences.</li> <li>• Investigate and prosecute illegal waste management operations</li> </ul>	<ul style="list-style-type: none"> <li>• The siting and granting of planning permission for waste management facilities. This is conducted by the waste industry and local planning authorities. The Agency, as a statutory consultee on planning applications, can advise on such matters.</li> </ul>	<p>The Agency will work with waste producers, the waste-management industry and local authorities to reduce the amount of waste produced, increase re-use and recycling and improve standards of disposal.</p>
<p><b>Contaminated Land</b> The Agency has a duty to develop an integrated approach to the prevention and control of land contamination ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.</p>	<ul style="list-style-type: none"> <li>• Regulate the remediation of contaminated land designated as special sites.</li> <li>• Prevent future land contamination by means of its IPC, Water Quality and other statutory powers.</li> <li>• Report on the state of contaminated land.</li> </ul>	<ul style="list-style-type: none"> <li>• Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land.</li> </ul>	<p>The Agency supports land remediation and will promote this with developers and local authorities and other stakeholders.</p>
<p><b>Conservation</b> The Agency will further conservation, wherever possible, when carrying out water-management functions; have regard to conservation when carrying out pollution-control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.</p>	<ul style="list-style-type: none"> <li>• The Agency has no direct conservation powers, but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation.</li> </ul>	<ul style="list-style-type: none"> <li>• The conservation impacts of new development. These are controlled by local planning authorities.</li> <li>• Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to local authorities and developers to protect the integrity of such sites or species.</li> <li>• Implementation of the UK Biodiversity Plan for which it is the contact point for 12 species and one habitat.</li> </ul>	<p>The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation. The Agency will work with developers, local authorities, conservation bodies and landowners to conserve and enhance biodiversity.</p>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no direct powers) in:	Partnership
<p><b>Landscape</b></p> <p>The Agency will further landscape conservation and enhancement when carrying out water-management functions; have regard to the landscape when carrying out pollution-control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.</p>	<ul style="list-style-type: none"> <li>● The Agency must further the conservation and enhancement of natural beauty when exercising its water-management powers and have regard to the landscape in exercising its pollution-control powers.</li> </ul>	<ul style="list-style-type: none"> <li>● The landscape impact of new development, particularly within river corridors. This is controlled by local planning authorities.</li> </ul>	<p>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.</p>
<p><b>Archaeology</b></p> <p>The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.</p>	<ul style="list-style-type: none"> <li>● The Agency must promote its archaeological objectives though the exercise of its water-management and pollution-control powers and duties.</li> </ul>	<ul style="list-style-type: none"> <li>● Direct protection or management of sites or archaeological or heritage interest. This is carried out by local planning authorities, County Archaeologists and English Heritage.</li> </ul>	<p>The Agency will liaise with those organisations which have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests.</p>
<p><b>Fisheries</b></p> <p>The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.</p>	<ul style="list-style-type: none"> <li>● Prosecute offenders who use illegal methods to take fish and can seek forfeiture of all associated equipment.</li> <li>● Regulate fisheries by a system of licensing.</li> <li>● Make and enforce fisheries byelaws to prevent illegal fishing.</li> <li>● Promote the free passage of fish and consent fish passes.</li> <li>● Monitor fisheries and enforce measures to prevent fish-entrainment in abstractions.</li> <li>● Promote its fisheries duty by means of land-drainage consents, water abstraction applications and discharge applications.</li> <li>● Regulate the introduction of fish species to rivers and lakes.</li> </ul>	<ul style="list-style-type: none"> <li>● The determination of planning applications which could affect fisheries.</li> </ul>	<p>Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries.</p>
<p><b>Recreation</b></p> <p>The Agency has a duty to promote rivers and water space for recreational use.</p>	<ul style="list-style-type: none"> <li>● The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management.</li> </ul>	<ul style="list-style-type: none"> <li>● Promotion of water sports. This is carried out by the English Sports Council and other sports bodies.</li> </ul>	<p>The Agency will work with the Countryside Commission, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment.</p>

## Appendix 2: Organisations who responded to the public consultation

- Bodmin Angling
- British Canoe Union
- British Hydropower
- Caradon Countryside Service
- Caradon District Council
- Clean Rivers Trust
- Cornwall Farming & Wildlife Advisory Group
- Falmouth & Fowey Countryside Service
- Falmouth Marine School
- Forestry Commission
- Fowey Port Health Authority
- Fowey Town Council
- Inland Waterways Association
- Institute of Freshwater Ecology
- Liskeard & District Angling Association
- Liskeard Town Council
- Looe Harbour Commissioners
- MAFF
- National Trust
- Nation Farmers Union
- RSPB
- Torridge District Council

## Appendix 3: The quality of surface waters

**River Quality Objectives** – We manage water quality by setting targets called River Quality Objectives (RQOs). They are intended to protect current water quality and future use, and we use them as a basis for setting consents for new discharges and planning future water quality improvements.

The classification scheme known as the River Ecosystem (RE) Classification was introduced by the National Rivers Authority, following public consultation, in 1994. It replaces a former scheme introduced by the Water Authorities in the late 1970s and used by the NRA until 1994. 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

The RQOs we set must be achievable and sustainable; we must be able to identify what needs to be done to meet the RQO and to ensure as far as practicable that water quality can be maintained at this level in the future.

Where we are unable to identify solutions or resources to resolve current water quality problems, we may also set a Long Term RQO. We will measure compliance against RQOs but use Long Term RQOs as a basis for setting consents for new discharges and reviewing, where appropriate, existing 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

River	Stretch	RQO (LT RQO)	Set aside	Non-compliant stretches and falling parameter
Seaton	Source-Crow's Nest	1	Dissolved copper, total zinc, pH	
Seaton	Crow's Nest-Hendra Bridge	1	Dissolved copper	
Seaton	Hendra Bridge-Courtneys Mill Bridge	1		
Seaton	Courtneys Mill Bridge-Hessenford	1		BOD (marginal) <sup>1</sup>
Seaton	Hessenford-normal tidal limit	1		
Menheniot Stream	Source-Seaton confluence	1		BOD/TA (marginal) <sup>2</sup>
Tremar Stream	Source-Seaton confluence	2		
East Looe River	Source-Looe Mills	1		
East Looe River	Looe Mills-below Moorswater	1		BOD (significant) <sup>3</sup>
East Looe River	Below Moorswater-Lamellion Mill	1		
East Looe River	Lamellion Mill-below Liskeard STW	2		BOD (marginal) <sup>2</sup>
East Looe River	Below Liskeard STW-Trussel Bridge	2		BOD (marginal) <sup>2</sup>
East Looe River	Trussel Bridge-Landlooe Bridge	1		
East Looe River	Landlooe Bridge-normal tidal limit	1		
Dobwalls Stream	Source-East Looe confluence	1		
West Looe River	Source-Scawn Mill Bridge	1		
West Looe River	Scawn Mill Bridge-Churchbridge	1		
West Looe River	Churchbridge-normal tidal limit	1		
Connon Stream	Source-above Connon Bridge landfill site	2		
Connon Stream	upstream Connon Landfill-downstream Connon Landfill	2		
Connon Stream	Downstream Connon Landfill-Trevillis Wood	2		
Connon Stream	Trevillis Wood-West Looe Confluence	2		
Poiperro River	Source-normal tidal limit	2		
Fowey	Source-Harrowbridge	1	pH	
Fowey	Harrowbridge-Draynes Bridge	1	pH	
Fowey	Draynes Bridge-Bodithiel Bridge	1		
Fowey	Bodithiel Bridge-Respryn Bridge	1		
Fowey	Respryn Bridge-normal tidal limit	1		
Pont Pill	Source-normal tidal limit	1		
Trebant Water	Source-normal tidal limit	1		BOD (marginal) <sup>1</sup>
Lerryn River	Source-normal tidal limit	1		BOD (marginal) <sup>1</sup>
Bedellva Stream	Source-Lerryn confluence	2 [1]	pH	TA (marginal) <sup>1</sup> [TA (significant)/ BOD (marginal)] <sup>1</sup>
Cardinham Water	Source-Fowey confluence	1		
Warleggan River	Source-Fowey confluence	1		
St Neot River	Colliford Lake-Colliford Bridge	1	pH	
St Neot River	Colliford Bridge-Fowey confluence	1		
Northwood Stream	Source-Fowey confluence	1	pH	
Siblyback Stream	Siblyback Reservoir-Fowey confluence	1		

Notes:

- 1: See Effects of farming and forestry    2: See Effects of effluent discharges  
3: See Unknown causes or poor water quality

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.

The assessment of compliance with RQOs is based on three years of routine monitoring data from the Public Register, collected between 1995 and 1997. Failures to meet RQOs are separated into *significant* and *marginal* failures. Significant failures are those where we are 95 per cent certain that a river stretch has failed to meet its RQO and marginal failures are those where we are less certain (between 50 per cent and 95 per cent) that a stretch has failed to meet its RQO.

The rivers of the Seaton, Looe and Fowey Catchment have been divided into 38 classified reaches. The failing parameter is also shown in the table opposite (BOD stands for biochemical oxygen demand; TA for total ammonia):

## EC Directives

We also manage water quality by applying standards set in EC Directives and other international commitments. Those that apply to the Seaton, Looe and Fowey catchment are detailed in the following sections.

**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.

There are five identified Bathing Waters in the catchment: Dowlunderry, Seaton, Millendreath, East Looe and Ready money Cove. There have been Bathing Waters Directive failures at Seaton (1992), East Looe (1993, 1996, 1997, 1998) and Ready money (1991, 1993, 1997).

**EC Freshwater Fish Directive** – The EC Directive on *the quality of waters needing protection or improvement in order to support fish life (78/659/EEC)* ensures that water quality in designated stretches is suitable for supporting certain types of fish.

This Directive contains two sets of quality standards. One set of standards protects cyprinid or coarse fish populations, for example roach and chub. The other set of stricter standards protects salmonid or game fish populations, for example salmon and trout.

We are responsible for monitoring the quality of identified fisheries 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.

There are eight Freshwater Fisheries stretches in the catchment; all are designated as salmonid. All designated stretches were compliant with the Freshwater Fish Directive in 1995, 1996 and 1997.

**EC Surface Water Abstraction Directive** – The EC Directive *concerning the*

quality required of surface water intended for the abstraction of drinking water in the Member States (75/440/EEC) protects the quality of surface water used for public supply. This Directive ensures that water abstracted for public supply meets certain quality standards and is given adequate treatment before entering public water supplies.

The Directive sets out standards that must be achieved for water for public supply which is to be given different levels of treatment.

We are responsible for monitoring the quality of designated surface water abstractions and reporting the results to the DETR who decide whether the standards in the Directive have been met. Where standards are not met, we are responsible for identifying sources of pollution and making sure that improvements are made.

There are three identified Surface Water Abstraction sites in the Seaton, Looe and Fowey catchment. These are at the Colliford Reservoir and on the River Fowey at Trekeive Steps and at Restormel.

From 1995 to 1997, the only cases of non-compliance with the Directive occurred due to the natural geology of the catchment and due to methodological constraints. Such failures are not a cause for concern and thus are not a catchment issue.

**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 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.

We monitor two designated sites for List I substances in the Seaton, Looe and Fowey catchment; these are the Looe STW's effluent and a site 250 m downstream of the discharge. Both are monitored for hexachlorocyclohexane (HCH). The Looe STW effluent is also monitored for List II substances along with a site on the East Looe River downstream of the Moorswater China Clay Driers. These are both monitored for arsenic, chromium, copper, lead, nickel and zinc. The Moorswater site is also monitored for pH. In addition to designated Dangerous Substances sites, we also monitor two National Network sites in the Seaton, Looe and Fowey catchment. These are at Railway Halt on the East Looe River and in the Combined Looe Estuary; both are monitored for all List I substances.

All Dangerous Substances sites were compliant from 1995 to 1997; however, the National Network site in the Looe Combined Estuary was non-compliant for HCH in 1995. This non-compliance was caused by a single sample showing a gross concentration of HCH. In response to this, effluent from Looe STW was monitored for HCH, as were the receiving waters. No further elevated levels of

HCH have been detected in the estuary and the STW effluent has not shown any significant concentrations of HCH. The assumption has been made that the elevated HCH in 1995 was the result of a spillage and therefore this is not considered to be an issue.

**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 eutrophic or may become so 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.

There are currently no sensitive area designations in the Seaton, Looe and Fowey catchment. However, monitoring is being carried out to determine whether a sensitive area designation should be sought for the East Looe River from Liskeard (Lodge Hill) STW to the normal tidal limit.

Several sewage treatment works have been identified as requiring improvements under AMP3; these are shown in the table below, along with the reasons why improvements are required.

STW	Statutory driver: UWWTD	Non-statutory driver: (e.g. Long Term RQO)
St Cleer	Aesthetic impact from storm discharge	Current consent does not protect downstream Long Term RQO. A tightening of the BOD and ammonia standards is required.
Bodinnick	Appropriate treatment	
Colant	Appropriate treatment	
Polperro	Appropriate treatment	Higher level of improvement required.

**Shellfish Hygiene Directive** – The Shellfish Hygiene Directive *laying down the health conditions for the production and the placing on the market of live bivalve molluscs (91/492/EC)* protects the health of consumers of live bivalve molluscs such as mussels and oysters. This Directive defines standards for shellfish quality required in the end product. It also classifies bivalve mollusc shellfish harvesting areas into four categories according to the concentrations of bacteria found in the shellfish flesh.

The Ministry of Agriculture, Fisheries and Food (MAFF) and the Department of Health share responsibility for this Directive in England and Wales. We have only a minor role in implementing this Directive. Although we provide information on the location of discharges that may affect harvesting areas, we cannot control the quality of the polluting discharges under this Directive.

Pont Pill, a creek of the Fowey estuary, is used for the production of Pacific

oysters and clams. This site is classified under the EC Shellfish Hygiene Directive. In addition Pont Pill has been provisionally classified as a class B relaying area for mussels. In summary, the classification is as follows:

Production Area	Bed Name	Species	Class
Fowey	Pont Pill	<i>Crassostreas.gigas</i> (Pacific Oysters)	B
		Mussels	B (provisional)
		<i>Tapes philippinarum</i> (Manila clam)	C

**EC Shellfish Waters Directive** – The Shellfish Waters Directive *on the quality required of shellfish waters (79/923/EEC)* protects shellfish populations (defined as bivalve and gastropod molluscs) from harm caused by pollution. We are responsible for monitoring the quality of designated shellfish waters and reporting the results to the DETR who decide whether the standards in the Directive have been met. Where standards are not met, we are responsible for identifying sources of pollution and making sure that improvements are made.

The Shellfish Waters Directive aims to protect shellfish health and is therefore the tool for regulating potentially harmful discharges.

At present, no Shellfish Waters sites have been identified in the Seaton Looe and Fowey LEAP area. However, the DETR have recently consulted on designating further Shellfish Waters sites; a decision on whether any further waters will be designated is expected from the DETR in the spring of 1999.

## Abbreviations

AMP	Asset Management Plan
BAP	Biodiversity Action Plan
BATNEEC	Best Available Technology Not Entailing Excessive Cost
BPEO	Best Practicable Environmental Option
CES	County Environmental Services
CSCF	Cornwall Sea Fisheries Committee
CSO	Combined storm overflow
CWT	Cornwall Wildlife Trust
DETR	Department of the Environment, Transport and the Regions
ECCI	English China Clay International
EU	European Union
FWAG	Farming and Wildlife Advisory Group
HSE	Health and Safety Executive
IPC	Integrated Pollution Control
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
MI	Megalitre (=1 million litres)
NASCO	North Atlantic Salmon Conservation Association
ng/l	nanogram per litre
RQO	River Quality Objective
SAFFA	Salmon and Freshwater Fisheries Act
SMP	Shoreline Management Plan
SSSI	Special Site of Scientific Interest
STW	Sewage Treatment Works
SWRA	South West Rivers Association
SWW	South West Water Limited
TBT	Tributyltin
UV	ultra-violet
VMCA	Voluntary Marine Conservation Area
VMCCA	Voluntary Marine and Coastal Conservation Area
WCRT	West Country Rivers Trust

## Glossary

**Abstraction** – Removal of water from a surface or groundwater source of supply.

**Adit** – Gently sloping passage from mine workings into valley areas to allow water to drain out of the workings (The downstream entrance is called the adit portal.)

**Algal blooms** – A visible, often seasonal occurrence of very large numbers of algae floating in fresh water or sea.

**Anthropogenic** – Resulting from or influenced by man's activities.

**Arisings** – Quantities of waste being generated.

**Aquifer** – Layer of porous rock able to hold and transmit water. Often classified as major, or minor, depending on the extent to which they support higher-yielding borehole systems.

**Baseflow** – The flow in a river comprising emergent groundwater sources. In dry conditions river flows consist entirely of baseflow.

**Bioaccumulate** – Concentration of pollutant substances, such as metals, within the tissues of organisms.

**Biochemical Oxygen Demand (BOD)** – A measure of the amount of oxygen consumed in water, usually as a result of organic pollution.

**Bryophytes** – Mosses and liverworts.

**Buffer zone** – Strip of land 10-100 m wide alongside rivers, which is removed from intensive agricultural use and managed to provide appropriate habitat types. Benefits include potential reduction of inputs into the river such as silt, nutrients and livestock waste, as well as improving habitat diversity and landscape.

**Clitter** – Clitter (the local name for scree) is the accumulation formed by fragments of rock resulting from mechanical weathering. In the case of clitter, periglacial weathering has caused its formation.

**Compensation flow** – A defined release from a reservoir to compensate for the impact of the impoundment by maintaining a minimum flow in the river downstream.

**Consent** – A statutory document issued by the Environment Agency under Schedule 10 of the Water Resources Act 1991 to indicate any limits and conditions on the discharge of an effluent to controlled water.

**Controlled waste** – Waste from household, commercial or industrial sources; it may be solid or liquid. It does not have to be hazardous or toxic.

**Culm measures** – A distinct area of North East Cornwall, extending into Devon, characterised by poor soils and rushy pastures. The Culm Measures contain many important habitats and species.

**Culvert** – Channel or conduit carrying water across or under a road, canal etc.

**Determinand** – That which is to be determined or measured.

**Drought order** – Drought Orders are made by the Secretary of State upon application by the Environment Agency or a water undertaker, under powers conferred by Act of Parliament, to meet deficiencies in the supply of water due to

exceptional shortages of rain. The terms and conditions under which Drought Orders may be obtained are given in Sections 73-81 of the Water Resources Act 1991 and Schedule 22 Section 139 of the Environment Act 1995. Drought Orders are sub-divided into 'Ordinary' and 'Emergency' Drought Orders. A Drought Order could contain provisions such as: to authorise abstraction from an unlicensed source, override the conditions on an existing abstraction licence, limit the amount of water which may be taken from a source, vary discharge conditions or might allow the prohibition of use of water for particular purposes, to allow a ban on non-essential use of water (for example in car washes) or to introduce the use of stand-pipes.

**Ecosystem** – A functioning interacting system composed of one or more living organisms and their effective environment, in a biological, chemical and physical sense.

**Eutrophication** – The natural ageing of a lake or landlocked body of water results in organic material being produced in abundance due to a ready supply of nutrients accumulated over the years. Eutrophication can be greatly increased as a result of nitrate and phosphates in fertilizer runoff or sewage treatment works.

**Fluvial** – Pertaining to river flow and its erosive activity.

**Grilse** – Atlantic salmon that have remained in the sea for only one winter.

**Licence of entitlement** – Licence granted under Schedule 26 of the Water Act 1989 in respect of a previously exempt abstraction greater than 20m<sup>3</sup>/day which required a licence by virtue of an amendment to Section 24(2) and (3) of the Water Resources Act 1963. (This only covered particular domestic and agricultural uses, including fish farming and flows to domestic amenity ponds).

**Main river** – Some, but not all, watercourses are designated as 'Main River'. 'Main River' status of a watercourse must first be approved by MAFF. Statutory (legally binding) maps showing the exact length of 'Main River' are held by MAFF in London and the Environment Agency in Regional Offices. The Environment Agency has the power to carry out works to improve drainage or protect land and property against flooding on watercourses designated as 'Main River'. The Environment Agency does not have the legal power to spend public funds on drainage or flood protection works on watercourses not designated as 'Main River'.

**Natural area** – The whole of England has been described as a series of ecologically distinct areas following survey work by English Nature.

**Nutrient** – Conveying, serving as, or providing nourishment.

**Parr** – Juvenile salmonids aged one year and older.

**Payback** – The consultancy service of Groundwork Trust for Devon & Cornwall. They carry out waste audits for business.

**Permeability** – A measure of the ease with which liquids (or gases) can pass through rocks or a layer of soil.

**Poaching** – Banks significantly trampled or puddled by livestock. Include banks trampled as a result of human activity.

**Prescribed flow (pf)** – Flow below which a river must not be reduced as a result of licensed abstraction.

**Redd** – Hollow created in riverbed gravels by spawning salmonid fish into which the female deposits ova.

**Riparian owner** – Owner of riverbank and/or land adjacent to a river. Normally

owns riverbed and rights to at least midline of channel.

**River corridor** – Land which has visual, physical or ecological links to a watercourse and which is dependent on the quality or level of the water within the channel.

**Salmonid** – Game fish of the salmon family, e.g. salmon, brown trout and sea trout.

**Smolts** – Young salmonids migrating to sea for the first time and adapted to life in salt water.

**Special wastes** – These are the most hazardous or toxic wastes. Some common special wastes are: acids, alkaline solutions, oil fly ash, industrial solvents, oily sludge, pesticides, pharmaceutical compounds, photographic chemicals, waste oils and wood preservatives.

## References

Seaton Looe and Fowey Local Environment Agency Plan Consultation Draft, Environment Agency, October 1998. SW-9/98-0.7K-E-BDAE

## MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

Head Office is responsible for overall policy and relationships with national bodies including Government.

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

### ENVIRONMENT AGENCY REGIONAL OFFICES

#### ANGLIAN

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

#### SOUTHERN

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

#### NORTH EAST

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

#### SOUTH WEST

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

#### NORTH WEST

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

#### THAMES

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

#### MIDLANDS

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

#### WELSH

Rivers House/Plas-yr-Afon  
St Mellons Business Park  
St Mellons  
Cardiff CF3 0LT  
Tel: 01222 770 088  
Fax: 01222 798 555



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

**ENVIRONMENT AGENCY  
GENERAL ENQUIRY LINE**

**0645 333 111**

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

**ENVIRONMENT AGENCY  
EMERGENCY HOTLINE**

**0800 80 70 60**



**ENVIRONMENT  
AGENCY**



*All enquiries to:*  
**Cornwall Area**  
**Sir John Moore House**  
**Victoria Square**  
**Bodmin**  
**Cornwall**  
**PL31 1EB**  
**Tel: 01208 78301**  
**Fax: 01208 78321**