

local environment agency plan

WEST SOMERSET RIVERS

ACTION PLAN

FEBRUARY 1999



ENVIRONMENT
AGENCY



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Foreword

The Environment Agency is a major environmental organisation responsible for regulating waste disposal to land, industrial releases to air, and safeguarding and improving the natural water environment. Our aim of integrated environmental improvement in West Somerset contributes to the achievement of global sustainability in accordance with the spirit of the 1992 Rio de Janeiro 'Earth Summit' agreement.

The Plan area includes significant parts of the Exmoor National Park and the Quantocks Area of Outstanding Natural Beauty which are nationally prized for their exceptional wild beauty. It also includes the major seaside resort of Minehead together with other tourist centres such as Porlock, Watchet and Dunster which support a developing tourist industry. Here in West Somerset, we must be ever vigilant to protect our local environment from the growing pressures of tourism and development whilst recognising their importance in the local economy.

This Action Plan is the second stage in the LEAP planning process for the area, following on from the Consultation Report which was published in February 1998. The Action Plan is the Agency's commitment to the integrated and sustainable environmental management of the West Somerset Rivers area and sets out an agreed programme of action to be carried out over the next five years. Other solutions will be looked at in a longer-term perspective over a wider area.

We are grateful for the responses to our consultation. The spirit of partnership needed to implement this plan is represented by the valuable contributions received from local authorities, environmental and interest groups as well as the public. This partnership will ensure that all who care for the environment can work better together to enhance the area.



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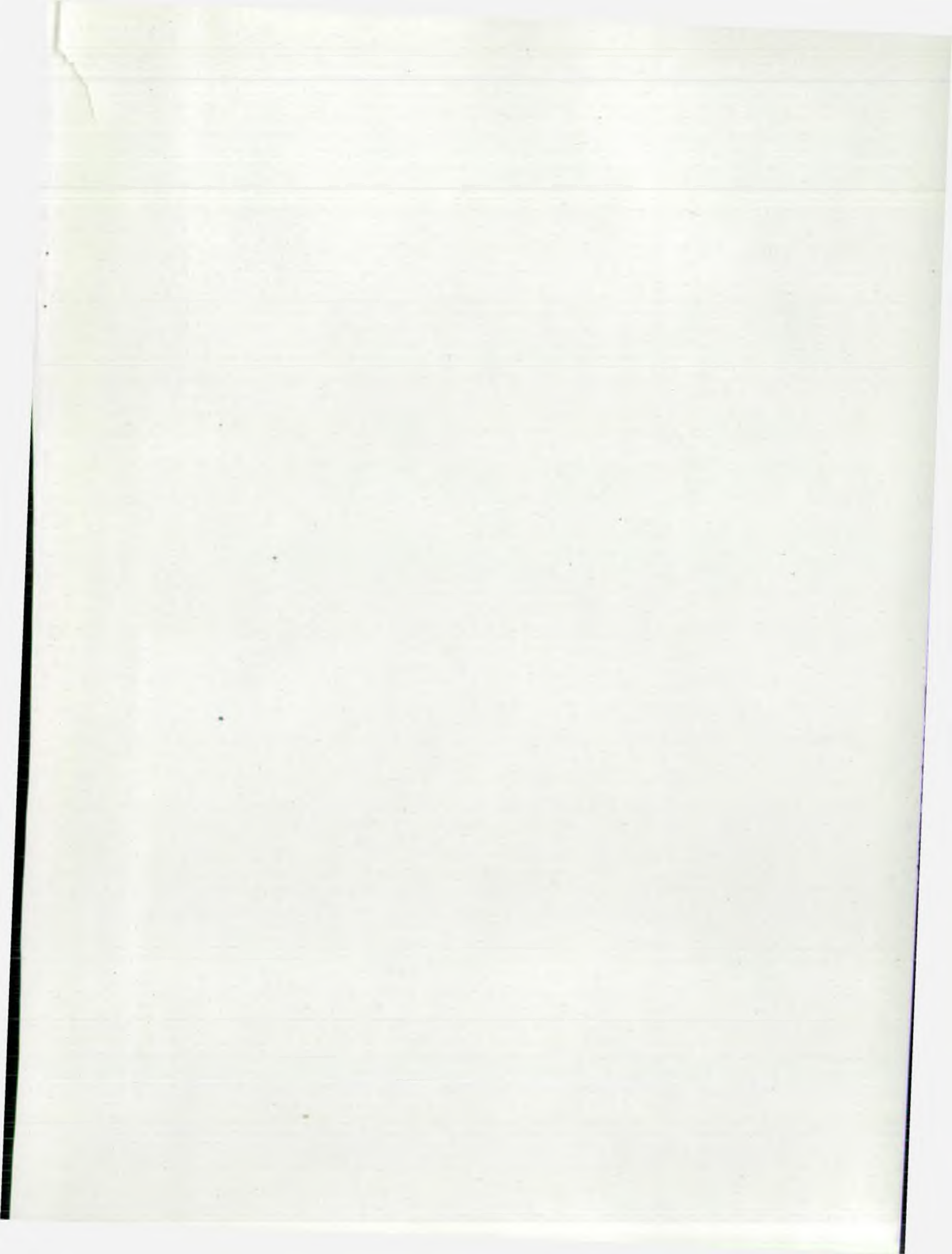
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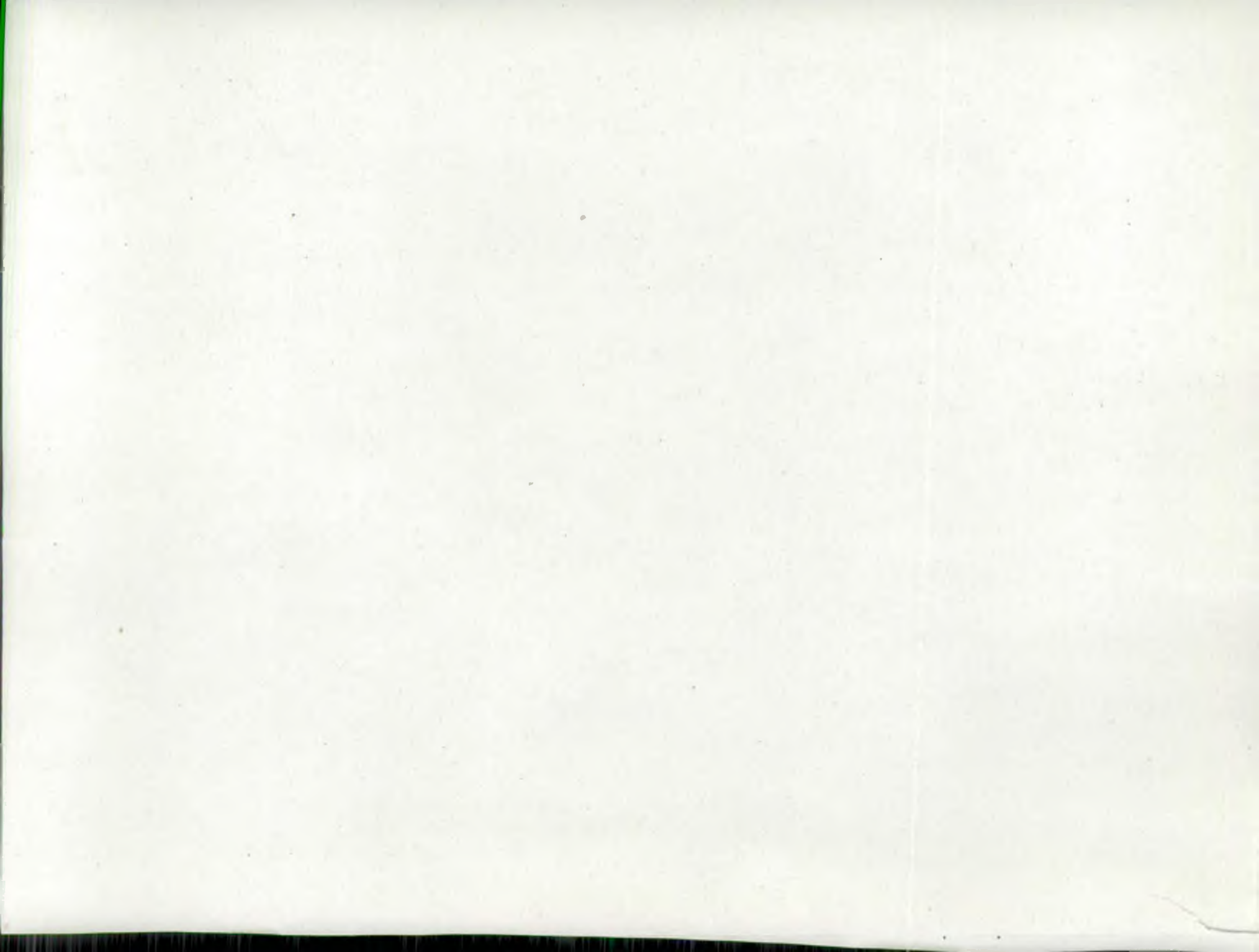
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Note: This is not a legally or scientifically binding document.





Map 1 - West Somerset Rivers Catchment



map 1

Map 2 - Compliance with River Quality Objectives (River Ecosystem Classification 1997)



map 2

Fold out for Map 2
1997 Compliance with River Quality Objectives





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1. Introduction

The Environment Agency was set up by the Government in 1996. It has a wide range of duties and powers relating to different aspects of environmental management (see Appendix 12.6 - Duties, powers, interests of the Environment Agency - for more details). It is 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. The Agency therefore has to reflect this in the way it works and in the decisions it makes.

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

Although the Agency only has duties and powers to protect some environmental resources, it will need to contribute to other aspects of environmental management even if these are, in the first instance, the responsibility of others. The Agency can only do this effectively by working in partnership with and through others in order to achieve agreed objectives.

Much of the UK's environmental legislation originates from the European Union. To date there have been five European Community (EC) Environmental Action Programmes which have collectively given rise to several hundred pieces of legislation of relevance to environmental protection, one of the most recent being the Directive on Integrated Pollution Prevention and Control. A number of other directives are currently under consideration, covering issues such as water management, air quality, and the management of waste using landfill.

The Agency also has to work in a wider international context because it is now generally accepted that environmental changes are occurring on a global scale. Individual countries contribute to these changes, and respond to them, in different ways. The Agency's long-term strategy therefore has to reflect these global issues, and it has to be delivered within the framework of international and national commitments which have been developed to address them.

A major outcome 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**. The Local Agenda 21 initiative set out actions needed to achieve sustainable development, including the need to make clear the links, which exist, between local life-styles and the use of resources. In the UK plans have now been formulated by local government and local communities to identify and address a wide range of environmental issues including natural resource use, pollution, health, local amenity and quality of life. These programmes set out long-term solutions that take account of global implications, such as the use of resources that affect the global environment and thus local communities in other parts of the world.

The Agency is committed to a programme of Local Environment Agency Plans (LEAPs) in order to produce a local agenda of effective, accountable, integrated action for environmental improvement and contribute to sustainable development. These LEAPs will also allow the Agency to deploy its resources to best effect and optimise benefit for the local environment.

The process of drawing up the plans will involve close consultation with all interested parties. 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.

1.1

The West Somerset Rivers plan area

This LEAP plan area starts at Foreland Point in the west and extends east to Hinkley Point, covering an area of approximately 320 km². This area includes all the land drained by the rivers that flow to the north coast: the Hawkcombe Stream; Horner Water; River Aller; River Avill; Pill River; Washford River; Doniford Stream and Kilve Stream.

We monitor 94.7 km of rivers in the West Somerset Rivers plan area; biological data is monitored quinquennially and chemical quality is monitored annually. In biological terms 99% of the monitored river lengths (based on 1995 figures) were of good or very good quality while the remaining 1% were fairly good. Between 1990 and 1995 there was no overall deterioration in chemical quality over the monitored network while biological quality improved by 10%. In 1997, 91.13% of monitored river lengths in the catchment were of good or very good chemical quality; no classification is available for the remaining 8.87% due to insufficient data resulting from monitoring point relocation.

The area covered by this LEAP contains some outstanding landscapes. The Exmoor National Park and Quantock Hills Area of Outstanding Natural Beauty are nationally recognised designations, while most other areas are designated as a Special Landscape Area (SLA) to which certain Local Plan policies apply. The high moorlands of central Exmoor are surrounded by a more managed landscape of woodland and hill farm pasture enclosed by hedge banks. The Exmoor coastline is also noteworthy. Between Minehead and Foreland Point the coast is designated as Heritage Coast. It is marked by hogs-back ridges and spectacular sea cliffs. Bays are present along this stretch of coast with a particularly notable feature being Porlock shingle ridge.

The Quantock Hills consist of a broad ridge of sandstone that ends at the coast, forming cliffs. The Quantocks straddle three river catchment areas, with only the northernmost part being within the West Somerset plan area. In landscape terms the Quantocks are very similar to Exmoor but on a more compact scale.

Progressing eastwards, the river valleys become wider and the gradient less steep, fields are enclosed by hedges and villages occur frequently. The coast is made up of low, rapidly eroding cliffs and beaches of cobbles, with extensive wave-cut platforms. The easternmost portion of the site is on the western edge of Bridgwater Bay and has a landscape characteristic of an estuary. It is relatively flat and at low tide there are large areas of sand and mud exposed.

The West Somerset plan area represents a major resource for informal recreation, both for local communities and for tourists - tourism being a significant industry in West Somerset's economy. Activities such as walking, cycling and horse riding are increasing in popularity and the area is well served by footpaths and other rights of way, many of which run alongside rivers and streams, for example the Horner Water and the Doniford Stream. In the Exmoor National Park Plan, inland water was recognised as being a great attraction to visitors, providing a focus for informal recreation.

The coast is the traditional attraction for tourists centring on the town of Minehead. There are a number of beaches used for recreation, including Porlock Weir, Minehead, Blue Anchor and Kilve and small harbours at Porlock Weir, Minehead and Watchet. The South West Coast Path runs from Minehead to Poole in Dorset, making it the longest national footpath (at 960 km). During a survey of users in 1994, 1,074,094 people were recorded as using the path in the survey period (May-September).

2. The Environment Agency

2.1 Our vision

- A better environment in England and Wales for present and future generations.

2.2 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.

2.3 Public consultation

In February 1998 the Agency published the West Somerset Rivers Local Environment Agency Plan (LEAP) Consultation Report, which promised an Action Plan for the catchment following a period of public consultation. The Agency consulted approximately 200 organisations and individuals directly about the issues which are outlined in this Action Plan and received 21 formal responses. These responses are summarised in our Report on Public Consultation available on request from this office. A list of organisations responding to the Consultation Report can be found in Section 12.4.

This Action Plan outlines how the Environment Agency and other organisations plan to tackle issues which affect the environment in the West Somerset Rivers Catchment. Issues are grouped and summarised under the headings of the Agency's nine principal and immediate environmental concerns.

We have set up a LEAP Steering Group of key stakeholders to help us produce this Action Plan. The membership of individuals and organisations reflects as many interests in the catchment as possible. A list of members and the interests they represent can be found in Section 12.3.

2.4 Updating and reviewing this plan

We will publish an Annual Review to report progress on carrying out our planned actions. This will also be an opportunity to add new issues and actions as they may arise.

2.5 LEAPs and Development Plans

Although we can control some of the things which influence the quality of the environment or affect flood risk, we have very little direct control over the way that land is developed. This is the responsibility of local planning authorities. Local planning authorities prepare statutory development plans. The policies in these plans will guide the way that land is developed in the future.

Guidance has been published for local planning authorities to encourage them to adopt policies that protect the environment from the harmful effects of development. Where we can, we will reinforce these policies when we comment on planning matters. The Agency will also advise planning authorities on planning matters related to industrial processes, waste management and the storage, use and disposal of radioactive material.

The Environment Agency is in detailed discussions with local planning authorities with respect to provision of land allocations in Local Development Plans for their Plan period up to 2011.

2.6 The Agency's own environmental management

The Agency is committed to the following environmental management practices:

- 2.6.1. Resources** – We ensure the allocation of resources at all levels to achieve the implementation of effective environmental management action throughout the Environment Agency; to make line management responsible for the achievement of objectives and performance targets.
- 2.6.2 Targets** – We support continuous environmental improvement by the establishment of demanding, but achievable and measurable environmental performance targets, determined and reviewed annually. These targets cover aspects of energy and resource use, waste minimisation and recycling. Our current national targets are set out in the following Draft Environmental Performance Targets 1998/99 table.

Draft Environmental Performance Targets 1998/99

Target No.	Target	Completion Date
Legislative Compliance		
1	Continue to ensure full compliance of all Agency sites with all relevant environmental legislation by undertaking a second round of in-house reviews and reporting, investigating and rectifying all environmental incidents caused by our own activities.	Review within first anniversary of inspection, reporting by 30 November 1998.
Energy Management		
2	Reduce energy use in offices and depots by 20% measured as kWh/m ² compared to Energy Efficiency Office (EEO) typical or 1991/92 consumption, whichever is lower.	31 March 1999.

Target No.	Target	Completion Date
3	Compile "Green Transport Plans" to reduce commuter transport impacts at all key sites and to reduce mileage on Agency business (lease, badged, casual, essential, etc.) by 5% on 1996/97 figures.	Plans by 30 November 1998; Mileage by 31 March 1999.
4	Improve overall fuel efficiency for badged vehicle fleet by 3 mpg on 1996/97 figures.	31 March 1999.

Resource Management

	Implement resource and waste management plans at each Agency site. Specifically to:	Water by 30 September 1998; Waste by 31 March 1999.
5	<ul style="list-style-type: none"> ● reduce water use in offices and depots to 30% below accepted norm for this type of office or 1996/97 consumption, whichever is higher; 	
6	<ul style="list-style-type: none"> ● reduce residual waste by 15% on 1997/98 levels. 	
7	Ensure that at least 10% of construction aggregates used are from recycled/secondary sources.	31 March 1999.

2.7 About this plan

The topic chapters, which follow, outline actions for resolving the issues identified in the West Somerset Rivers LEAP Consultation Report and through public consultation. This Action Plan is structured around the Agency's nine environmental themes which are set out in the Agency's document, 'An Environmental Strategy for the Millennium and Beyond,' (see Appendix 15). The document, published September 1997, is subsequently referred to in this plan as the Millennium Strategy.

The nine themes aim to protect and enhance the environment in an integrated way and contribute towards the goal of sustainable development. Each theme has a list of actions to which the Agency is committed nationally. Where these actions apply within the catchment they are **quoted verbatim** in each chapter under the heading 'Locally we will'. Some of these actions are part of our routine work and others will not be carried out immediately and a few may not be started within the five-year period of this Plan.

Some environmental matters which are of concern to us are dealt with adequately by our routine work and so no specific actions are included here. Specific actions are only included where we do not consider our routine work is sufficient to resolve an issue.

For a full discussion of the issues please refer to the West Somerset Rivers Consultation Report Section 4. A guide linking Consultation Report issues with actions in this Plan is given in Section 12.5. The costs identified represent our planned expenditure over the next five years. However, our policy and priorities may change during this time; this may affect how much we will actually be able to spend on specific issues. Coastal issues are covered in the Severn Estuary Strategy Joint Issues Report, May 1998. Sometimes we cannot give a cost e.g. when an action is part of an Area, Regional or National project or when the action is 'liaising', 'promoting', 'supporting' or 'influencing'.

The financial years covered by this Plan are represented by a single date: for example '98' represents the financial year April 1998 to March 1999. Where costs are shown by a '2' it means that the costs have already been accounted for in association with another action covered elsewhere in the Plan.

3. Climate Change

Introduction – The climate has always been changing, but the rate of change appears to be increasing in recent years. There is a broad consensus of scientific opinion that such changes are occurring because of the impact of human activities on the global atmosphere.

It is now generally accepted in Europe that there is a high risk that some chemical emissions to the atmosphere may have a significant impact on the global environment. Emissions of a range of gases, notably carbon dioxide and methane, are adding to the natural 'greenhouse' effect, which is believed to cause global warming. Estimated emissions of carbon dioxide nationally, from large industrial processes and other sources in the UK, in 1990 was 155 million tonnes and has been rising each year. The international community is trying to get the major industrialised countries to sign up to achieving reductions of these 'greenhouse' gases. Currently Britain is committed to reducing emissions to 1990 levels.

It is estimated that because of global warming sea levels world-wide will rise by more than 500 mm in the next 100 years, although the present rate is probably about 2 mm per year in the Severn Estuary. With a rise of, say, 3 mm per year, tide levels, which have a statistical probability of occurring once every 200 years on average at Avonmouth, will be twice as frequent (once in 100 years) by 2006, and twice as frequent again (once in 50 years) by 2016. The Environment Agency uses these probabilities to design target standards for different land uses. Hence, a scheme designed to meet the standard of protection for high-density urban development would, by 2016, only meet the standard appropriate for rural communities, if additional action was not taken. The improvement of defences will take place within the strategic framework of Shoreline Management Plans. For more detail of coastal flood defence along the Bristol Channel and Severn Estuary coasts please see the Severn Estuary Joint Issues Report, May 1997; the Bideford and Bridgwater Bays Shoreline Management Plan; and the Severn Estuary Shoreline Management Plan.

In addition, some scientists believe that storms will become more frequent and more violent as a result of global warming. Storms can raise sea levels above predicted levels and generate increased wave action, causing overtopping and increased erosion of existing defences.

Local Action – 'The Agency's Millennium Strategy' details eight climate change actions, three of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 help to ensure that the Government's greenhouse gas emission reduction targets are met;
- 2 set an example by reducing our own energy and fossil fuel consumption;
- 3 provide improved mapping of low-lying coastal areas at risk from sea-level changes.

(Note: - Responsibility for coastal defence is shared between the Agency, local authorities and, in a few cases, private companies e.g. Railtrack.)

To help with local action 1 above we are reducing emissions to air from the most complex industrial processes within the plan area (see Section 4). The Environment Agency is responsible for authorising and regulating emissions to air from the following processes, fossil fuel powered electricity generating stations, refineries, steel and chemical works, cement and lime production and waste incineration. Local authorities are responsible for emissions from the rest of industry and for reducing emissions from vehicles. A National Atmospheric

Emissions Inventory is prepared each year for the Department of the Environment, Transport and the Regions (DETR) by the National Environmental Technology Centre (NETCEN). Emissions to air of greenhouse gases from these sites within this catchment are minimal.

Another source of greenhouse gases is landfill. With the decay of putrescible wastes in landfills, a mixture of gases generally known as landfill gas is produced. In the early years of decay carbon dioxide (CO₂) is the main contributor to landfill gas and its emission to the atmosphere. As available oxygen is used up within the landfill methane gas is produced and becomes the main contributor. Both carbon dioxide and methane are greenhouse gases; however, methane is estimated to be 20-30 times more damaging than carbon dioxide. Therefore conversion of methane to carbon dioxide by flaring or energy recovery is less damaging to the environment than allowing the landfill gas mixture to be discharged to the atmosphere unchanged. Only those sites that have taken large quantities of biodegradable wastes may be able to support combustion in some form or another.

(Note:- Landfill gas management is also often practised for other reasons i.e. to minimise the risk of migration or accumulation off-site; to eliminate so far as possible the risk of explosion or asphyxiation; to prevent unacceptable risk to human health, detriment to the environment or nuisance.)

We regulate landfills by issuing, enforcing and reviewing waste management licences, which can have conditions within them to ensure the appropriate management of landfill gas. During the year 1998-99 we will review thirty licences including, where appropriate, the need for existing sites to introduce or upgrade their landfill gas systems. The following table outlines the licensed active and closed sites in the West Somerset Rivers plan area, which have the potential to produce landfill gas, or are currently producing it. The table also identifies what measures are appropriate to deal with the gas.

Site No.	Name	Location	Status	NGR	P	F	E	Comments
WML 182/2	Wyvern Wastes Ltd	Williton	Active	ST 096 421		●		Active site, on-site flare stack in operation
WML 123	Somerset County Council	Wheddon Cross	Closed	SS 921 389				Closed site, insufficient gas to warrant flare or energy production. (The legal status of this site licence is presently being investigated.)

*Key: P = Passive, F = Flared, E = Energy production

Our response to local action 2 is that we have set targets to reduce our own energy and fossil fuel consumption. The burning of fossil fuels to produce electricity, as well as directly for energy, produces greenhouse gases. By reducing business mileage we reduce the greenhouse gas emissions from our vehicle exhausts. In addition we have appointed a Regional Officer to co-ordinate our internal environmental management (see Section 2.6 for details).

We will encourage the development of more sustainable energy production.

The maps referred to in local action 3 (i.e. to provide improved mapping of low-lying coastal areas at risk from sea-level changes) are known as 'Section 105 maps'. The standard used is a flood which has a statistical probability of happening once in 200 years. As required by the Ministry of Agriculture, Fisheries and Food (MAFF) and the Welsh Office we build into that prediction an allowance of 5 mm per year, up to 2030, for sea-level rise resulting from climate change. We have already supplied West Somerset District Council with the maps for their area.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
<p>3.1 Contribute to reducing Agency North Wessex area business mileage (see 2.6.2) by 5% and improve our overall fuel efficiency by 3 mpg on our 1996/97 figures. Contact: Business Services Manager</p>	Agency	Unknown	●	●			
<p>3.2 Contribute to reducing Agency electricity consumption in our North Wessex offices and depots by 20% compared to the Energy Efficiency Office typical or 1991/92 consumption whichever is lower. Contact: Business Services Manager</p>	Agency	Unknown		●			
<p>3.3 We will identify any landfills requiring new conditions to manage landfill gas as part of a review of licences. Contact: Team Leader Waste Licensing</p>	Agency	Unknown	●				

For a summary of our statutory duties, powers, and interests please see section 12.6

4. Air Quality

Introduction – In March 1997 the Government published a national strategy for air quality including: a framework of standards and objectives for the pollutants of most concern; a timetable for achieving objectives; and the steps the Government is taking and the measures it expects others to take to see that objectives are met.

One problem with managing air quality is that air pollution does not recognise boundaries and may affect areas a long way from its source.

As a national organisation we will be working closely with all local authorities throughout England and Wales to help achieve the objectives of the National Air Quality Strategy, principally through our regulation of emissions to air from controlled ('Part A') major industrial processes under Integrated Pollution Control (IPC). Local authorities are responsible for the regulation of smaller, less complex ('Part B') industrial processes and reducing traffic pollution (see Summary of West Somerset Council Air Quality Monitoring Results on page 12).

Air quality standards are prescribed in regulations made by the Government and obligations placed on local authorities regarding the establishment and operation of local air quality management areas. Local authorities will have to carry out periodic reviews of air quality in their areas. Where standards are not being met or are not likely to be met by 2005 they will make action plans to improve air quality in these areas. Local authorities have the major responsibility for managing air quality. This work is in its infancy and very little air quality measurement has been done so far, but the data collection process is now gathering momentum. West Somerset District Council is preparing a preliminary 'State of Air Quality' report and Somerset County Council will be producing a general air quality report for the whole of Somerset.

Ambient concentrations of smoke and sulphur dioxide have generally declined in the UK as a whole over the last twenty years. Similarly, both the quantity of lead released and its concentration in the atmosphere have declined since the mid-1980s following the introduction of lead-free petrol. However, the release of some pollutants such as nitrogen oxides (NO_x), carbon monoxide and volatile organic compounds has remained relatively stable during this period, although there may have been changes in their source. For example, releases of oxides of nitrogen from industrial sources have generally declined whilst emissions from road traffic, particularly at busy motorway junctions, have increased. Planned development in the area will lead to an increase in vehicle movement, and therefore an increase in the amount of polluting discharges, especially oxides of nitrogen. With the exception of ground level ozone, ambient levels of these pollutants are generally lower in the South West of England than in many other parts of England and Wales. However, we will use the Integrated Pollution Control authorisations to ensure that emissions to air from Watchet Paper Mill and the Hinkley Point Nuclear Power Stations are reduced as much as possible (see West Somerset Rivers Consultation Report Section 8, pages 33 - 37 and Section 24, page 68, for details). This information is available on the public register held at the Bridgwater office.

Ozone in the upper atmosphere is beneficial as it shields the earth from harmful ultra violet radiation. At ground level, however, ozone can be a harmful pollutant damaging crops and building materials and causing respiratory difficulties amongst sensitive people. Ozone is not emitted directly from any man-made source in any significant quantities, but arises from complicated chemical reactions in the atmosphere driven by sunlight. In these reactions, oxides of nitrogen and hydrocarbons (derived mainly from vehicle exhausts) react in the atmosphere to produce ozone. These chemical reactions do not take place instantaneously, but over several hours or even days, and once ozone is produced it may persist for several days. In consequence, ozone produced at one site may be carried for

considerable distances in the air, and maximum concentrations usually occur away from the source of the primary pollutants. The highest concentrations of ozone generally occur during hot, sunny and relatively windless days in summer. In common with other parts of Southern England, ozone levels in the catchment are generally above those at which damage to vegetation may occur (see West Somerset Rivers Consultation Report page 34).

Local Action – ‘The Agency’s Millennium Strategy’ details five air quality actions, all of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 help the government deliver its Air Quality Strategy;
- 2 ensure emissions from the major industrial processes to the atmosphere are reduced;
- 3 ensure specific emissions of sulphur dioxide and oxides of nitrogen, which contribute to acid rain, are reduced;
- 4 discourage the use of solvents in industry, which contribute to the production of ozone, the major photochemical pollutant;
- 5 set an example in reducing emissions from vehicles by reducing our own mileage and increasing the use of public transport.

We will help achieve the targets of the National Air Quality Strategy in a number of ways: for example we will work with local authorities, government agencies, and developers to ensure that developments make use of transport options producing the least pollutants and that development is located where it will have the least detrimental impact on air quality. The Government have produced a National Transport Strategy, published July 1998, and called ‘A new deal for Transport: Better for Everyone’. It is a white paper and sets out the broad framework from which detailed daughter documents expanding on policies will be produced. Some policies will be enacted through Acts of Parliament or Regulations. One additional policy has already been published, also in July 1998, called Roads Policy - ‘A new deal for trunk roads in England’. This proposes which roads become, or remain as, trunk roads and which should cease to be trunk roads.

West Somerset District Council is publishing their Review and Assessment of Air Quality – West Somerset in January 1999, from which the information below is taken. The review is the first stage in identifying where further detailed surveys need to be targeted. Four of the Somerset District Councils, including West Somerset, are currently working together to produce a larger pool of local data to identify possible areas of further investigation. See table “Summary of West Somerset District Council Air Quality Monitoring Results” page 12.

The extent of air quality monitoring within West Somerset has been limited, primarily due to the lack of heavy industry, high volume road traffic, and any other recognised sources of air pollution. Consequently the recommendations are focused on a few specific locations of expected pollution potential. The town centre locations of Dunster, Minehead, Williton and Porlock are selected for the monitoring of emissions associated with vehicle exhausts. The West Somerset District Council carried out monitoring on Vulcan Road in Minehead which supports the need to investigate these locations especially at peak periods in the tourist season. St. Regis Paper Mill and Hinkley Point Power Station are the two major industrial sites in West Somerset and are regulated by the Environment Agency as they operate Part A Processes under the Environmental Protection Act 1990. Both sites use back-up fuel source when normal supplies are not available and when electricity demand is high from domestic consumers such as in severe winter cold spells. Kerosene is burnt in the case of Hinkley Point and heavy fuel oil in the case of St. Regis Paper Mill at Watchet. The other site air emissions are regulated under the authorisations issued by the Environment Agency.

Summary of West Somerset District Council Air Quality Monitoring Results

Parameter	Period	Location/data points	EPAQS Standard	Comments	Review Recommendations
PM10 (Particulate Matter in the 10 to 20 micron range).	April and August 1996	Vulcan Road, Minehead.	50 µg/m ³ exceeded no more than 4 days per year	Easter weekend: highest 24 hour running mean value of 87.4 µg/m ³ , and average of 44.23 µg/m ³ . August 1996: both highest and average below 50 µg/m ³ .	To undertake further studies and modelling for ground level concentrations of PM10 from combustion processes at Hinkley Point Power Station and St. Regis Paper Mill, Watchet. To undertake additional studies at Dunster town centre, Minehead (junction of Alcombe Road & Ponsford Road), Williton (junction of A358 & A39) and Porlock town centre.
Benzene			5 ppb	No sampling carried out but background levels predicted as being less than 0.25 ppb (NECTCEN - 1996)	To undertake further studies and modelling for benzene and 1, 3 Butadiene from the occasional use of Kerosene at Hinkley Point Power Station.
1, 3 - Butadiene			1 ppb	No data available	
Nitrogen Dioxide (NO ₂)	April and August 1996	Vulcan Road, Minehead.	150 ppb (1 hour average) 21 ppb (annual average)	No values exceeded EPAQS standards	To undertake computer modelling of ground level NO ₂ from combustion processes from St. Regis Paper Mill, Watchet and Hinkley Point. To undertake further studies for Nox at: Dunster town centre, Minehead (junction of Alcombe Road & Ponsford Road), Williton (junction of A358 & A39) and Porlock town centre.
Lead			0.5 µg/m ³	General background level of 0.05 µg/m ³ (NECTCEN - 1996)	No further assessment required.
Sulphur Dioxide (SO ₂)			100 ppb exceeded for no more than 35 fifteen minute periods per year	Mean annual Sulphur Dioxide background concentration estimated to be less than 2.0 ppb (NECTCEN - 1996)	To undertake computer modelling to assess likely ground level concentrations of SO ₂ arising from the combustion processes at St. Regis Paper Mill, Watchet and Hinkley Point. To undertake studies to determine SO ₂ levels in villages where coal is burnt for domestic heating such as Dulverton and Porlock.
Carbon monoxide	April and August 1996	Vulcan Road, Minehead.	10 ppm (8 hour running average)	No values exceeded EPAQS standards. General background level in West Somerset of 0.3 ppm (NECTCEN - 1996)	No further assessment required.

EPAQS is Expert Panel of Air Quality Standards

NECTCEN are the co-ordinating body for the National Air Quality Archive, and now publish information on background concentrations of air pollutants.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
<p>4.1 Reduce business mileage - see Action 3.1 Climate Change. Contact: Business Services Manager</p>	Agency	Unknown	●	●	●	●	●
<p>4.2 Report local authority air quality monitoring results in future LEAP Annual Reviews. Contact: Team Leader Tactical Planning</p>	Agency, West Somerset Council, Somerset County Council	Nil	●	●	●	●	●
<p>4.3 Use the IPC process to reduce as far as possible emissions to air from Watchet Paper Mill and the Hinkley Point Nuclear Power Stations. Contact: Team Leader Tactical Planning</p>	Agency, Watchet Paper Mill, Hinkley Point A & B	Unknown	●	●	●	●	●

For a summary of our statutory duties, powers, and interests please see section 12.6

5. Water Resources

Introduction – Water is an essential but finite resource that needs careful management to ensure its availability. We can help to develop public awareness of this issue and guide people towards a more sustainable use of water. 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 time-scales to allow sufficient time to meet any forecast potential imbalance between supply and demand.

Local Action – ‘The Agency’s Millennium Strategy’ details 16 water resources actions, 10 of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 demand a more efficient use of water and reductions of leakage by the water companies and by industry in general;
- 2 encourage a more efficient use of water by the public and a change in public attitude to water usage;
- 3 demand reductions in leakage by the water companies before considering any cases for investment in new reservoirs (*or other new sources*);
- 4 support the imposition of compulsory selective metering where water supplies are under stress and where meters are economically sensible to install;
- 5 support the voluntary acceptance of water meters when accompanied by other water-saving incentives for the customer;
- 6 vigorously apply our Policy and Practice for the Protection of Groundwater (PPPG) to ensure that the quality and use of groundwaters is improved;
- 7 examine water transfer schemes carefully to ensure that no environmental damage would result from their introduction;
- 8 not approve the exploitation of new environmental resources until water-saving measures have been introduced;
- 9 ensure that the practical limitations arising from water supply and treatment are fully considered by providing local planning authorities with all information relevant to new housing or industrial developments;
- 10 ensure that all environmental needs are fully taken into account within the next Asset Management Plan (AMP) negotiations with the water companies (and also with the Government’s water industry financial regulator, the Office of Water Services (OFWAT) and the Government).

5.1 Securing future public water supplies

Wessex Water Services Ltd (WWSL) supply water to the West Somerset Rivers Catchment. The company manages water on a Strategic Supply Area (SSA) level. An SSA is an area in which all water resources, including external transfers, can be shared and hence the zone in which all customers experience the same risk of supply failure from a resource shortfall. This catchment initially fell within the Somerset SSA. However, Wessex Water have recently reorganised their supply system whereby the Somerset SSA has been expanded and renamed the North Zone Strategic Supply Area. Subsequent text gives forecasts using the old name – Somerset SSA: This is because the forecasts were made before the reorganising of the SSAs. When the Agency’s Water Resources Strategy is revised and republished in 2000, the forecasts will be made for the reorganised supply system.

Water supply and demand forecasts up to 2021 for the individual SSAs were published in 1995 in the National Rivers Authority's Water Resources Strategy document, 'Tomorrow's Water'. The demand forecasts are based on two scenarios of high and low growth in demand. By 2001, forecast demand in the Somerset supply area is forecast to be in deficit under a 'high demand' scenario or have a surplus of 1 megalitre per day under a 'low demand' scenario. Although current demand figures are closer to a 'medium' if not 'low' forecast the Somerset SSA is still dependent on transfers of water from other Strategic Supply Areas.

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 is currently reviewing, for agreement with DETR, those sewage discharges where improvement is required

In parallel with OFWAT's current third periodic review, the Agency requires water companies to produce a Water Resources Plan for the next twenty-five years. This will include revised demand forecasts and a review of resource availability and will consider any potential resource options to meet forecasted deficits over the twenty-five years. This information will enable us to revise the public water supply aspects of our Water Resources Strategy. The internal draft of Wessex Water's plan was submitted to the Agency in June 1998. A national review of all the draft plans, 'Progress in water supply planning', was published in October 1998. The Agency expects that Wessex Water will wish to make public the key aspects of their draft plan before completing the final plan in April 1999. 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. OFWAT supports our efforts to encourage water company demand and resource management.

In addition, 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 expects from the third periodic review.

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 direction of changes proposed by the Department of the Environment Transport and the Regions (DETR) are set out in their 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 Future Demand – Before any further resources can be developed we have to be satisfied that the water company has 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. Wessex Water are targeting leakage reduction as a high priority and are making reductions within OFWAT targets. They report that they have no plan for new licensed abstractions within the West Somerset plan area.

Demand management involves a number of different initiatives including metering. Meters are installed in all new domestic properties and WWSL have a free meter option for customers. The water companies have a duty to apply and demonstrate efficient use of water within the business and to its customers. In respect of this they have published water efficiency plans which contain strategies

to encourage water saving by the customer. WWSL's plan includes advice on how to save water in the home and garden and for businesses. WWSL also offer free water audits and free leakage detection and repair.

More efficient management of existing resources, including conjunctive use of sources and effective leakage control, can increase the quantity of water that is available to supply customers. The economic level of leakage is set at the point when the cost of reducing leakage is equal to the cost of supplying the water saved. The Agency will continue to discuss and revise leakage targets with WWSL as appropriate.

Promotion of water-saving measures – The average family uses approximately 32,000 gallons/146,000 litres of water per year, and indications are that consumption will continue to grow. This suggests that there is a large potential for increasing water-saving measures. One area that has gained public prominence is the re-use of 'grey water', which is household waste water excluding spent toilet water ('black-water'). The 'grey-water' can then be recycled via the household plumbing system for use in toilet flushing or used outside for purposes such as garden watering.

The Agency is currently investigating the effectiveness and applicability of 'grey-water'. The main factors being considered are the water-saving potential, water quality, customer acceptability and financial viability. A report on the trials is to be published early in 1999. 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 'grey-water' recycling, which has the potential to save up to 30% of the average domestic water consumption. This and other demand management research is carried out at our National Water Demand Management Centre at Worthing.

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, low water use dishwashers and washing machines and the provision of water butts.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
5.1.1 Revise the Regional Water Resources Development Strategy based on information received in water companies' water resources plans. Contact: Regional Senior Water Resources Planner	Agency, Wessex Water	Unknown	●	●			
5.1.2 Disseminate information on demand management and water-saving measures in conjunction with the National Waste Survey. Contact: Regional Senior Water Resources Planner	Agency, Wessex Water, OFWAT	5	●				
5.1.3 Reduce our North Wessex Area Office water consumption to 30% below the industry accepted target per office employee. (Does not apply to depots.) Contact: Business Services Manager	Agency	Unknown	●	●	●		
5.1.4 Work on demand scenarios within Local Authority Development and Structure Plans Contact: Planning Liaison Officer	Agency, Somerset County Council, West Somerset District Council	Unknown	●	●	●	●	●

For a summary of our statutory duties, powers, and interests please see section 12.6

6. Biodiversity

Introduction – There is widespread concern about the decline in biodiversity (the variety of life on earth). The European Union (EU) member states are producing Biodiversity Action Plans (BAPs) in an effort to halt and reverse the decline of species and habitats. The UK Biodiversity Action Plan lists key habitats and species which require conservation action, through Regional and Local Biodiversity Action Plans. The Regional Biodiversity Audit Plan for the South West was published in April 1996 and was followed by Action for Biodiversity in the South West in June 1997 - a series of habitat and species plans to guide delivery. The Regional and Local Biodiversity Action Plans are currently being developed by local authorities, English Nature (EN) and others, including the Environment Agency.

Local Action – ‘The Agency’s Millennium Strategy’ details 12 actions to enhance biodiversity actions, 11 of which we are contributing to in the West Somerset Rivers area, and these are **quoted verbatim** below.

Locally we will:

- 1 play a full part in implementing the EC Habitats Directive;
- 2 play a full and active part in delivering the UK’s Biodiversity Action Plan by acting as the ‘contact point’ for the chalk rivers plan and for 12 species of aquatic animals and plants, including the otter, the water-vole, and rare species of fish, and by acting as the ‘lead partner’, either singly or with others for ten of them;
- 3 ensure that all aspects of the Biodiversity Action Plan are incorporated into the Agency’s guidance and become part of its Local Environment Agency Plans;
- 4 implement a series of regional projects, in partnership with local conservation groups, to deliver biodiversity targets at specific sites;
- 5 allocate specific resources to conservation projects aimed at increasing biodiversity;
- 6 control eutrophication, where feasible, in order to enhance biodiversity (see sections 8.4 and 9.6);
- 7 improve the management of wetlands for conservation purposes;
- 8 use and promote the best environmental practice for the protection and restoration of river habitats;
- 9 develop and set conservation criteria for all of the Agency’s environmental licensing activities;
- 10 implement specific projects to restore habitats in rivers and lakes, increase the area of reedbeds and other water plants, and improve river banks;
- 11 ensure that there is no deterioration in the quality of the aquatic environment in particular, and deliver significant improvements in river and still water quality by tackling diffuse pollution of them.

We are working with a number of organisations to formulate and implement habitat and species action plans at both regional and local levels over the next five to ten years. West Somerset District Council (WSDC) has commissioned the Somerset Environmental Records Centre (SERC) to prepare a BAP for the district outside the Exmoor National Park and the Quantocks; this will be published in early 1999.

The Agency is developing National Species Action Plans and is the contact point for the otter and water-vole, which are known to occur within the catchment. Water-voles are a rapidly declining species, and are to be given protection under the Wildlife and Countryside Act. A gazetteer of sites was compiled in 1996 (Somerset Environmental Records Centre, 1996). This showed that water-voles were present within the ditch system adjacent to Hinkley Point and at sites on the Doniford Stream, Porlock Marsh and the River Avill. Native white-clawed crayfish occur in the Monksilver Stream and may exist in other local watercourses. Work is being undertaken within the West Somerset area to assess the distribution of this species (see 6.7). The river lamprey also occurs in the Doniford Stream. The black poplar is a comparatively rare species of tree, which is often found near rivers, and so we are liaising with the work of Somerset Wildlife Trust (SWT) which is investigating the genetics of known specimens with a view to producing a black poplar Action Plan. There are no rare species of fish in this plan area.

Otters, fully protected under the Wildlife and Countryside Act (1981), have been recorded as using a number of watercourses within the plan area. All of the major rivers and streams provide suitable habitat for otters to hunt and breed and this is therefore an important catchment for this species (see 6.4).

The Hawk and Owl Trust have expressed an interest in working with us to develop habitat creation and nest-box schemes within the plan area.

Farmers play a critical role in river corridor habitat management. The Farming and Wildlife Advisory Group (FWAG) are working with farmers in the neighbouring River Tone catchment promoting best agricultural practice to protect and enhance river corridor habitats, and reduce pollution. They are also promoting best practice to reduce soil erosion and runoff into the river. This particular problem occurs on a belt of light, sandy soils which continues into West Somerset in the area of the Doniford and Monksilver Streams and parts of the Washford River. There is considerable potential for FWAG to do a similar project in the West Somerset area.

There is local concern that feral rainbow trout, i.e. farmed trout which have escaped from fish farms and which are now living in the wild, are a threat to the native brown trout population. To date our surveys have not shown this to be a problem but we are monitoring the situation.

In the West Somerset Rivers area, the invasive plant, Japanese knotweed, causes particular concern adjacent to watercourses. Where the plant has taken over a river bank, problems of increased erosion can occur in winter. This is because the plant has a tuber, rather than a fibrous rootstock, so that when it dies back in winter there are no roots to bind the soil of the river bank together, making it more likely to be washed away by winter floods. Moving riverbank earth containing the tubers to a new location can cause the plant to spread.

Control of invasive plants in the river channel is primarily the responsibility of the riparian owner. Normally we do not control invasive plant growth unless it becomes an obstruction to flood flow. Control of Japanese knotweed is very labour intensive and requires action over at least five years. It is not a flood defence priority to control it. However, it needs to be controlled before it becomes the dominant river bank vegetation and thus a flood defence issue as well as a biodiversity issue (see 6.8).

The Agency also has an important role to play in the conservation of habitats including reedbeds, saline lagoons, coastal grazing marshes and headwater streams. For more information on species and habitats see Section 10, page 39 of the Consultation Report.

We will act in an advisory role to encourage a move towards rehabilitating grazing marsh through the Countryside Stewardship Scheme and the County Wildlife Sites Projects for Dunster Marsh. MAFF's Countryside Stewardship Scheme can provide a range of environmental benefits throughout the plan area.

After a major breach of the ridge by the sea in October 1996 the nature of Porlock Marsh has changed, the site having much more of a saline influence (see Section 3 - Climate Change). Restoration of salt marsh is a national BAP priority (see 6.1), when considering options for coastal defences schemes. Managed retreat (or managed re-alignment as it is now known) would normally be considered as an option, and we will monitor the changes from grazing marsh to saltmarsh /saline and lagoon. There are no formal schemes where this is currently being considered. At the time of writing the Shoreline Management Plan (Bridgwater Bay to Bideford Bay) that covers this area has not yet been adopted by the flood defence committee. (This is expected to happen at the end of January 1999). When available the SMP will identify preferred management options for each section of the coast, and the possible options would include managed re-alignment. Any such option for Porlock Marsh, or other stretch of coast in the plan area, would still need to satisfy standard technical, environmental and economic criteria and be sustainable.

Maintaining and enhancing biodiversity

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
6.1 Porlock Marsh - monitor change of habitat from grazing marsh and reedbed to salt marsh/saline lagoon. Contact: Team Leader Conservation	Agency, English Nature	2 p.a.	●	●	●	●	●
6.2 Headwater streams - survey to assess value and develop conservation strategy. Contact: Team Leader Conservation	Agency	1.5		●			
6.3 Water-voles - liaise with Somerset Wildlife Trust (SWT) to undertake a survey to increase our knowledge of distribution and investigate the main reasons for the absence of the water-vole from large parts of the plan area. Establish any habitat enhancements required resulting from the survey. Contact: Team Leader Conservation	Agency, SWT	5		●			
6.4 Otters - liaise with Somerset Otter Group re. survey and habitat enhancements required resulting from the survey. Contact: Team Leader Conservation	Agency, Somerset Otter Group	5		●			
6.5 Otters - collect carcasses of otter road casualties and send for tissue analysis. Contact: Team Leader Conservation	Agency	Unknown	●	●	●	●	●
6.6 Black poplar – liaise with SWT to investigate genetics of trees present and formulate action plan for species present. Contact: Team Leader Conservation	Agency, SWT	5		●			
6.7 Native crayfish - collate data on status and distribution of native crayfish and river lamprey and protect known habitats. Contact: Team Leader Fisheries	Agency	5		●	●	●	
6.8 Invasive plants – seek to eradicate Japanese knotweed from the Hawkcombe Stream and any other watercourses where it is found. Control other species where they become a problem. Contact: Team Leader Conservation	Agency / Riparian owners	13	3	10			

For a summary of our statutory duties, powers, and interests please see section 12.6

7. Fisheries

Introduction – The Environment Agency has a specific duty to assess the state of, and safeguard, freshwater fisheries and the waters, which they inhabit. In 1978 an EC Freshwater Fish Directive was adopted (78/659/EEC) with the purpose of setting water quality objectives for designated stretches of water, to enable fish to live continuously (rather than just support migration) or breed in favourable conditions. Two categories of water were identified: those suitable for salmonids (salmon and trout), and those suitable for cyprinid fish (carp, tench, rudd, roach), the essential difference between the two categories being that salmonid fish habitats are characterised by fast-flowing reaches of rivers which have a high oxygen content and a low level of nutrients, whereas cyprinid fish habitats are those of slower-flowing waters. Various standards were set in relation to these categories, including values for dissolved oxygen (DO), pH, non-ionised ammonia, total ammonia, total residual chlorine, zinc and, where thermal discharges occurred, temperature. The Directive does allow for the granting of derogations at a national level with respect to certain substances, for which the required standards may be exceeded in cases of exceptional weather conditions, or geographical conditions, or because of the natural enrichment of the water from substances leaching from the soil.

Local Action – ‘The Agency’s Millennium Strategy’ details 12 actions to manage our freshwater fisheries, five of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 monitor every river fishery over a 5-year rolling cycle;
- 2 restore spawning grounds for freshwater fish;
- 3 implement a programme of minimum acceptable flow for rivers (*Note: - In simple terms this is the river flow below which unacceptable damage to plants and animals occurs or detriment to legitimate downstream uses*);
- 4 develop specific longer-term strategies for salmon, trout and coarse fisheries;
- 5 reduce poaching to a minimum and bring rod licence evasion to under 10%.

The sea trout population in West Somerset is somewhat remote from other populations and may be distinct. Sea trout are known to enter three of the river systems: the Doniford Stream, the Washford River and the River Avill. Typically, adults enter the rivers late in the year to spawn in the lower reaches. Where new river works could obstruct the passage of sea trout there may be a legal requirement to provide a fish pass. Sea trout are prevented from entering the Horner Water, except at times of very high freshwater flow, by the shingle ridge which forms across the river mouth. There is also a need to protect spawning gravels from siltation (see Section 9.5 Soil Erosion).

For details of local concern about feral rainbow trout see Section 6 Biodiversity.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
7.1 Sea trout – ensure that the migration of sea trout is not obstructed and that spawning areas are protected. Contact: Team Leader Fisheries	Agency, riparian owners	Unknown	●	●	●	●	●

For a summary of our statutory duties, powers, and interests please see section 12.6

8. Integrated River-Basin Management

Introduction – Integrated river-basin management is a way of looking at the river and its surrounding land as a whole. It not only looks at the quality and quantity of water in the river but also at its physical environment including landscape, recreational use, flood control works and the wildlife the river and its surroundings support.

Flood Defence – Riparian landowners have the responsibility to maintain the watercourses on their land although in practice the situation is rather different. Under the Land Drainage Act 1991 the more significant rivers are designated as *main river* and the Act gives the Agency powers to maintain them, and in practice we maintain them using money obtained from a precept on the Council Tax. We are also responsible for a large number of water level management control structures.

Local authorities have powers to maintain non-main rivers though in practice they only exercise them where lack of maintenance is causing a significant flooding problem. The Agency has an overall duty to supervise flood defence matters. We do this by advising on who is the appropriate person or body to deal with a problem.

In accordance with the Department of the Environment (DoE, predecessor of DETR) *Circular 30/92 Development and Flood Risk* we advise planning authorities on flood defence matters. We also issue consents and byelaw approvals for certain works which are likely to affect the flow of water or impede any drainage work (see Section 9 - Conserving the Land).

Standards of Service Land Use Bands and Targets

Land use band	Description of typical land use	Target standard of flood protection (flood return period) in years	
		River	Sea
A	Urban	1 in 50-1 in 100	1 in 100-1 in 200
B	Lower density urban	1 in 25-1 in 100	1 in 50-1 in 200
C	Isolated rural communities	1 in 5-1 in 50	1 in 10-1 in 100
D	Isolated properties/intensive farming	1 in 1.25-1 in 10	1 in 2.5-1 in 20
E	Low grade agricultural land	<1 in 2.5	<1 in 5

Absolute flood protection is not possible. Because of this we need to warn people when there is a danger of flooding. On 1 September 1996 we took over the role of warning the public and other organisations of likely flooding. We have developed communication systems aimed at providing flood warnings to those members of the public most at risk. We have a strategy which details how the procedures operate called the Flood Warning Dissemination Plan for Somerset and Avon areas; a copy is held in our Area office at Bridgwater for public inspection.

We issue warnings by direct contact and via local radio and we also provide recorded information on current flood warnings. Leaflets are also available from our Bridgwater office, which fully explain the flood warning service.

A study of the level of service for flood warning is currently being carried out to determine whether the required standard is met. The results will identify additions and other changes to the flood warning service.

Water quality - We manage water quality by setting chemical targets called River Quality Objectives (RQOs). They are intended to protect current and future use, and we use them as a basis for setting consents for new discharges and planning future water quality improvements. We show failures to meet RQO as *significant* and *marginal* failures. Significant failures are those where we are 95% certain that the river stretch has failed to meet its RQO. Marginal failures are those where we are less certain (between 50% and 95%) that the stretch has failed to meet its RQO. We also manage water quality by applying standards set in EC directives and other international commitments.

Following public consultation we have now set our RQOs (see Map 2 inside the back cover) using a classification scheme known as River Ecosystem (RE) (see table). Where immediate solutions or resources are unavailable to resolve current water quality problems, we may also have set a long-term RQO (LTRQO). We measure compliance only against RQOs but use LTRQOs 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. As a result of public consultation we have reviewed the RQO for the Hawkcombe Stream and have decided to upgrade the RQO from RE2 to RE1. RE1 is achievable in the Hawkcombe Stream and we believe it will also be sustainable.

The RE classification has five classes:

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

Note: Class RE5 has lower limits and so is not by any means the worst water quality possible.

The latest compliance with the targets we have set is shown on Map 2 inside the back cover. (Note: - RQO compliance cannot be assessed for three stretches in 1997; these are: the Avill Tributary - source to confluence with the Avill (stretch 6); Wootton Courtenay Stream - Hanny Combe to confluence with the Avill (stretch 7); and the Doniford Stream - Flaxpool to confluence with the Willet Tributary (stretch 14). This is because of the relocation of the monitoring point for each of these stretches, which has resulted in a shortfall of data with which to assess RQO compliance.)

We also monitor biological quality and classify river stretches using a scheme of six classes:

Biological Class Descriptions

Biological Class	Class Description
a	Very good
b	Good
c	Fairly good
d	Fair
e	Poor
f	Bad

Non-compliance with an RQO or EC Directive, or degraded biological quality, are not issues in themselves, but rather they are the effects of some pressure on the environment. Such pressures are: sewage treatment works effluent, direct and diffuse agricultural discharges, the impact of low-gradient channel modification, penning, hot weather, abstraction, some maintenance practices (weedcutting and dredging), landfill leachate, and industrial discharges. The pressures affecting this catchment were identified in the Consultation Report and will be dealt with in the issue sub-sections which follow this introductory text. There were no failures of the Freshwater Fish, Surface Water Abstraction and Dangerous Substances Directives in the West Somerset area in 1997.

Local Action – ‘The Agency’s Millennium Strategy’ details 16 actions to deliver integrated river-basin management, 12 of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 manage river-basins in an integrated way, via Local Environment Agency Plans;
- 2 ensure that all waters are of sustainable quality for their different uses;
- 3 deliver a continual improvement in overall water quality;
- 4 provide effective flood defence;
- 5 provide an effective flood warning system;
- 6 increase the number of rivers and still waters capable of supporting viable fisheries;
- 7 improve river habitat quality as measured by river habitat surveys;
- 8 improve wetland management;
- 9 improve riverside landscapes;
- 10 improve bathing water quality (*see the Severn Estuary Joint Issues Report*);
- 11 increase the number of Agency-owned sites available for public recreation;
- 12 work with local authorities to maximise the conservation and recreational use and value of our river-basins.

8.1

Flooding and the need for an improved flood warning service

Flooding in West Somerset has always been a particular problem because of the short, steep rivers fed by a number of tributaries, which are also steep and too small to be monitored. The rivers respond rapidly to rainfall, making flood forecasting difficult, particularly in the Doniford Stream. Also, in the past it has not always been possible to give adequate warning of floods because the flooding information was not up-to-date.

Section 105 floodable area maps for the West Somerset area have now been completed and presented to the Local Planning Authority (LPA). As a result of this survey we should now be able to make a more accurate identification of current flood problems and property at risk. We annually review those properties receiving flood warnings under the new Agency flood warning service.

Major Incident Plans are prepared by District Councils for locations which would be affected by flooding only when the flood is worse than the design standard of the defence.

Actions	Action By	Cost to Agency (£K)	Financial Year					
			98	99	00	01	02	
8.1.1 Assess current flood warning levels of service. Contact: Flood Defence Responsible Officer	Agency	8		●	●			
8.1.2 Contribute to any Major Incident Plans that are being produced by West Somerset District Council. Contact: Flood Defence Responsible Officer	Agency, West Somerset District Council	3.5	●	●				

8.2 Water quality

Of the 20 monitored river stretches (94.7 km) in the West Somerset Rivers plan area, there was one stretch on the Washford River (stretch number 12, from Roadwater to Watchet) which significantly failed to comply with its River Quality Objective (RQO) of RE1, in 1997, for unknown reasons. This stretch also significantly failed to comply with its RQO in 1996. The failures may be due to ribbon development along the watercourse and a storm overflow downstream of Washford or due to the sampling point, downstream of a ford and duck-pool area, being unrepresentative of water quality. The sampling point has now been relocated to a more representative site.

We have set a long term River Quality objective (LT RQO) of RE2 for the two stretches of the River Pill to guide future consent setting.

In 1997 the River Aller (stretch number 3, from source to sea) marginally failed to comply with its RQO of RE1. The reason for this failure is currently unknown and is being investigated.

The only monitored stretch of the Traphole Stream (stretch number 10, downstream of Mineral Line fish farm to confluence with Washford River) marginally failed to comply with its RQO in 1996. Our investigations found no possible sources accounting for this failure and as the stretch was compliant in 1997 we now feel that there is little threat of future non-compliance.

The Consultation Report listed a proposed action under Issue 4.11 - Unknown causes of poor water quality – to investigate the reasons for the slight downgrading in biological quality. This was a minor issue and we do not propose to do any special work to investigate but we will carefully monitor future results. Although biological quality fell short of 'pristine', it was, nevertheless, good at all sites. (Note: exceptional factors like the recent spate may lead to our sampling not being totally representative of normal conditions.)

Actions	Action By	Cost to Agency (£K)	Financial Year					
			98	99	00	01	02	
8.2.1 Investigate the cause of the significant RQO failure on the Washford River - Roadwater to Watchet. Contact: Team Leader Environment Protection West Somerset & Tone	Agency	0.5		●				
8.2.2 Investigate the cause of the marginal RQO failure on the River Aller - source to sea. Contact: Team Leader Environment Protection West Somerset & Tone	Agency	0.5		●				

8.3 Horner Water - bed loss

The Horner Water suffers from natural bed loss to river gravels in its lower reaches (between the A39 road bridge and the outfall to the Bristol Channel). Wessex Water holds an abstraction licence at Bossington for public water supply. This licensed abstraction takes water from the river gravels and although Wessex Water are operating within their licence conditions, it is possible that this abstraction is contributing to the bed loss in the lower reaches.

The abstraction may be contributing to infrequent ecologically damaging low flows in this reach. Low flows in the affected reach have occasionally necessitated fish rescues and caused fish kills.

In order to investigate the relative impacts of the natural bed losses and of the Wessex Water abstraction on flows on the Horner Water we will initially review the analysis of Bossington Well test pumping which was undertaken when the licence was issued in 1976. Wessex Water have expressed their willingness to co-operate fully in this investigation. However, we consider this a relatively low priority issue compared with other low flow issues in the region.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
8.3.1 Review the analysis of Bossington Well test pumping. Contact: Team Leader Area Water Resources	Agency	0.5		●			
8.3.2 Depending on the outcome of 8.3.1 investigate the relative impacts of the natural bed losses and of the Wessex Water abstraction on flows in the Horner Water. Contact: Team Leader Area Water Resources	Agency	Unknown					

8.4 The impact of agricultural discharges and runoff

Agriculture is important to the economy and the environment of the area, but produces potentially polluting waste, which needs careful management to avoid pollution of watercourses. Farming patterns have changed recently with cow numbers in West Somerset declining by 15% between 1985 and 1995. We expect this to contribute to a reduction in the number of pollution incidents due to organic waste discharges. Organic waste in rivers causes a depletion of dissolved oxygen on which life in the water depends, leading to a reduction in the variety of life which can be supported. Silt runoff is also harmful to wildlife in rivers and streams. We are working with other groups such as the Ministry of Agriculture, Fisheries and Food (MAFF), and the Farming and Wildlife Advisory Group (FWAG) to promote good agricultural practice, and with the Forestry Authorities to promote good forestry practice (see our Forestry and Water Guidelines 1993).

Two stretches (7.4 km of river) on the River Pill - source to Chapel Cleeve and Chapel Cleeve to sea marginally failed to meet their LTRQO in 1996 because of polluting farm discharges. These sites were compliant in 1997. However, we feel there is still a threat of non-compliance. Farm improvements are progressing regarding point source discharges but runoff problems remain.

We will continue to promote best agricultural practice to reduce runoff and diffuse pollution problems. In recent years we have greatly reduced the impact of farm pollution from point sources. We now need to focus more of our attention on the more difficult problem of diffuse pollution.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
8.4.1 Monitor the implementation of farm schemes on the River Pill – source to Chapel Cleeve and Chapel Cleeve to sea. Contact: Team Leader Environment Protection West Somerset & Tone	Agency	2	●	●	●		

8.5 Impact of septic tanks

The effluent from inefficient septic tanks or the combined effect of effluent from several septic tanks can cause or contribute to non-compliance with water quality objectives. West Somerset District Council Environmental Health Officers are concerned about the risk of contamination of private water supplies in close proximity to septic tank discharges. One stretch of the River Pill - source to Chapel Cleeve marginally failed to meet its LTRQO of RE2 in 1996. Septic tank effluent may have contributed to this. Although this site was compliant with its LTRQO in 1997, there is still a threat of non-compliance and so we will continue to monitor the site in 1998.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
8.5.1 Investigate septic tank inputs to the River Pill. Contact: Team Leader Environment Protection West Somerset & Tone	Agency	1		●			

8.6 The impact of polluting discharges on bathing water quality

Water samples are taken from both EC designated and non-designated bathing waters along the coastline. There have been occasional exceedences of the standards of the EC Bathing Waters Directive at the designated bathing water at Minehead. Wessex Water will complete their current improvement scheme to the discharge at Minehead in 1999 so that it will receive secondary treatment with ultra violet disinfection under AMP2. The Agency will investigate the inputs into the Duckpool Rhyne at Minehead to assess bacterial contamination, which may contribute to an exceedence of the bathing water standards. Bacterial contamination may come via wrong connections from Somerset World, birds on the marsh area and possibly a septic tank at the golf course.

The present discharges at Watchet and Doniford may contribute to exceedence of the mandatory standards of the EC Bathing Waters Directive at Blue Anchor West. In AMP2 the outfall at Doniford was extended in 1997 and preliminary treatment was installed in order to meet the requirements of the Urban Waste Water Treatment Directive (UWWTD). In AMP3 the Agency is now seeking secondary treatment at Doniford, together with improvements to the storm discharge, to reduce the risk of failure of the EC Bathing Water Directive mandatory standards at Blue Anchor West. Under AMP2 the outfall at Watchet is being extended and primary treatment installed by the end of 2000. However, as a result of Ministerial Guidance the Agency is now seeking in AMP3 to have secondary treatment installed and the storm discharge improved at Watchet. Wessex plan to install secondary treatment as soon as land purchase, planning permission and works design allow.

There are instances when a non-designated bathing water (e.g. Doniford) shows high levels of bacterial contamination which if designated would fail the standards of the EC Bathing Waters Directive. This year the Agency will be undertaking further investigations in order to establish a clearer picture of where the bacterial contamination originates. This will be done by routine sampling of all the river inputs and storm overflows along the coastline and a series of effluent tracing studies of the discharges from Minehead, Watchet and Doniford sewage outfalls.

The Agency understands that West Somerset District Council is considering whether or not to make a submission to the DETR to have the bathing waters at Watchet and Doniford identified under the EC Bathing Waters Directive.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
8.6.1 Undertake a sampling programme of all river inputs and storm overflows along the coastline. Contact: Team Leader Monitoring	Agency	3	●				
8.6.2 Undertake a series of effluent tracing studies of discharges from Minehead, Watchet and Doniford sewage outfalls. Contact: Team Leader Investigations	Agency	16.5	●	●			
8.6.3 Investigate the possible polluting coliform inputs into the Duckpool Rhyne. Contact: Team Leader Environment Protection West Somerset & Tone	Agency	4	1	1.5	1.5		
8.6.4 Continue the discussions with Wessex Water and St Regis Paper Mill concerning the implementation by 2000 of the UWWTD to the Watchet/Doniford effluent disposal system. Contact: Team Leader Environment Protection West Somerset & Tone	Agency, WWSL, St Regis Paper Mill	20	5	15			

8.7 The recreational use of land and water

We have a duty to develop the recreational potential of land we own. The land that we own within Bridgwater Bay is managed as a National Nature Reserve (NNR) by English Nature and is used by relatively few people who wish to enjoy the area for walking and birdwatching. Due to the sensitivity of the area to disturbance we believe it would not be appropriate to encourage an increase in use although we would like to make information available to improve visitors' appreciation, quiet enjoyment and understanding of this internationally important site.

We will promote a balance between different water-related recreational activities and help to promote or develop access where appropriate.

However, one way we can improve recreational potential is by creating new footpaths on riverside flood defences that we own. The River Avill Flood Alleviation Channel runs from the A39 road to the coast at the eastern end of Dunster Beach. We will investigate the possibility of creating a path along one bank to link up with the coastal path creating a circular walk (see 8.7.2).

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
8.7.1 Investigate the amount of information available to visitors and produce a joint information leaflet.	Agency, English Nature	5		●			
8.7.2 Investigate the possibility of a circular walk using the River Avill Flood Alleviation Channel as a link.	Agency, West Somerset District Council	1		●			
8.7.3 Review coastal areas to assess the possibility of creating new paths.	Agency	2		●			

For a summary of our statutory duties, powers, and interests please see section 12.6

9. Conserving the Land

Introduction – The Agency is committed to protecting the land from pollution and erosion and also to minimising the risk to people and property from flooding (see Appendix 12.6 for details of the Agency's role).

Local Action – 'The Agency's Millennium Strategy' details 16 actions to conserve the land, ten of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 influence the Town and Country Planning system to prevent developments in the wrong places;
- 2 implement the Flood and Coastal Defence policy as advised by the Ministry of Agriculture, Fisheries and Food (MAFF) and the Welsh Office;
- 3 provide floodplain surveys to local planning authorities;
- 4 discourage development in floodplains;
- 5 work with nature to reduce coastal flooding;
- 6 report regularly on the state of flood defences;
- 7 identify the state and extent of the problem of soil erosion (*Note: see Section 9.5*);
- 8 work with local authorities to identify, and report on the extent of, contaminated land;
- 9 regulate identified 'special' contaminated land sites effectively;
- 10 identify the needs of, and alleviate the effects of, soil acidification in upland areas;

Note: 8 and 9 will not start until Government regulations are in force in July 1999.

9.1

Flood defence and development

We are concerned that, in the past, planning authorities have permitted developments where they will suffer flooding and/or exacerbate existing flooding problems. We will, therefore, use our influence as a statutory consultee so that planning authorities are able to steer development to places where such flooding problems do not occur, in accordance with our published Policy and Practice for the Protection of Floodplains. Approximately 2,300 new dwellings are proposed to be built in the plan area between 1991 and 2011 as well as the provision of 15 hectares of employment land over the same period.

A detailed hydraulic analysis of various reaches including Holford Stream (all); Monksilver and Doniford Streams (most); Washford River (sea outlet to Hungerford); Carhampton minor watercourses (east and west tributaries); and the River Avill (sea outlets from old and relief channels to Gallox Bridge, Dunster), was completed in September 1997. The outcome is that we now have a 'definitive' set of 100-year flood event (Section 105) maps for the above watercourses at existing development levels in the catchment. Any further development can be plugged into these baseline computer models to assess the impact on flood events over the existing situation (see 9.1.1).

West Somerset District Council is keen to build on the already significant tourist industry in the area. Any increase in tourism will lead to additional tourist industry infrastructure (see Consultation Report Issue 4.1 Development Pressure).

Our Planning Liaison section reviews and comments on all planning applications, which have flooding, and other environmental implications. Nationally we are conducting a one-year trial audit of the take-up of our requirements in a 10% random sample of those applications to which we object, or ask for conditions to be attached.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
9.1.1 Advise the local Planning Authority on the level of flood risk associated with land use allocations in West Somerset and seek the earliest possible discussions with new developers and the local planning authorities to advise on the best environmental options for proposed developments. Contact: Team Leader Planning Liaison	Agency	Unknown	●	●	●	●	●
9.1.2 Work in partnership with West Somerset District Council to improve their environmental policies and work towards a more sustainable type of development. Contact: Team Leader Planning Liaison	West Somerset District Council, Agency, National Park	Unknown	●	●	●	●	●

9.2 Impact of proposed Watchet Marina

Since the closure of Watchet Harbour for commercial shipping a proposal for a Marina has been made and is currently being assessed by the authorities. A full environmental assessment has been carried out.

At the Environment Agency we are concerned about a number of environmental aspects:

- silt disposal both during and after construction;
- possible barriers to migratory fish associated with the silt flush culvert;
- the risk of tidal flooding which we would want to be in line with the normal standards for commercial development;
- water quality which could deteriorate if tidal flushing arrangements are not adequate;
- pollution risks from oil/fuel, concrete, silt and sanitation during and after construction.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
9.2.1 We will work with the developers and the local Planning Authority to ensure that adequate safeguards for the environment are in place if the project goes ahead. Contact: Team Leader Planning Liaison	Agency, LAs	Unknown	●	●			

9.3 Impact of Somerwest World, Minehead - surface water disposal

Somerwest World at Minehead currently suffers flood risk from tidal inundation and inadequate surface water drainage infrastructure. Risk from tidal flooding is being addressed as part of the Agency's new Minehead Sea Defence. Phase 1, the hard defences, was completed at the end of August 1998. Phase 2, which is the 'soft' defence i.e. beach raising, has not yet been programmed and timing is dependent on funding but should be complete by summer 1999.

Currently parts of Somerwest World are at risk as a result of inadequate surface water drainage facilities. Upgrading the surface water drainage facilities in isolation, and without consideration of the surrounding agricultural drainage systems, could have a detrimental impact on those systems.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
9.3.1 Liaise with Somerwest World to ensure the wider aspects of uprating the drainage system are considered. Contact: Team Leader Development Control	Agency, Somerwest World	0.6	●	●			
9.3.2 Ensure the Dunster Drainage Board and Local Drainage Authority provide input to drainage studies. Contact: Team Leader Development Control	Agency, Dunster Drainage Board	0.4	●	●			
9.3.3 Investigate possible wrong connections and other inputs to the Duckpool Rhyne (see section 8.6.3 for details of this action). Contact: Team Leader Environment Protection West Somerset and Tone	Agency	-	-	-			

9.4 Flooding in Williton

Part of the town of Williton has flooded several times in the last 30 years.

Williton lies on the downstream end of the Monksilver Stream just upstream of the confluence with the Doniford Stream. The catchment suffers from the effects of high rainfall on Exmoor and a steep gradient, which leads to rapid runoff.

Flooding occurs due to the inadequacy of the existing channel and culverts through the town together with lack of maintenance of upstream sluices. Floodwater leaves the channel at road bridges and passes down through the streets into the town. Up to 38 houses and commercial properties and 2 outbuildings will flood in a flood event which statistically occurs once every 50 years.

Changes to the bridge causing the worst problem (Mamsey Bridge) are due to be completed in January 1999; this work should reduce the risk of flooding. Also, with West Somerset District Council we will review the operation of the upstream sluices.

A flood alleviation scheme for Williton has been identified and is included in our programme of capital works for post 2003, subject to funding and priority changes, and technical, economic and environmental feasibility work.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
9.4.1 Review the need for, or operation of sluices, which affect flooding in Williton. Contact: Flood Defence Responsibility Officer.	Agency, West Somerset District Council	2		●			

Throughout the North Wessex Area it has been normal to receive some customer requests about land-loss due to bank erosion. Bank erosion is a natural process on these high energy rivers flowing through soft substrates and one that could not be prevented from occurring. Legally the banks are the riparian owner's responsibility but we normally offer to advise on appropriate protective measures, such as bio-engineering techniques, pointing out that any proposals would require proper detailing and our byelaw approval (land drainage consent) before construction. However, in West Somerset two other factors complicate the issue.

First, following the severe 1960 floods, extensive works were carried out on most of the fast-flowing West Somerset rivers to increase flow capacity. In places this involved channel straightening and the filling of old loops. Where the old channel abutted the new, timber stakes or stone-filled gabion baskets were often installed to prevent washout of the backfill. Many of these training structures have now reached the end of their anticipated design life, and in certain cases they have failed and local erosion has resulted. However, our view is that the backfill has now consolidated to such an extent that any consequent land loss is no worse than at other locations where no works were carried out, and current policy is that replacement at the Agency's expense is not justified.

Second, these rivers incorporate a significant number of Agency flood defence structures, which could be damaged or lost through erosion, such as floodbanks or the ends of walled sections of river. Here we would normally expect to provide an appropriate protective system, or repair the existing one.

Local factors give rise to a public expectation that the Agency should carry out bank protection works wherever erosion is a problem, not just where we have a direct interest. Gaining acceptance of the Agency's viewpoint has sometimes proved difficult or impossible, resulting in wasted staff resources and disappointment for those suffering the erosion.

Changing farming practices may be contributing to the problem of soil erosion. Since the 1960s more upland has been reclaimed leading to increased runoff. Because agreements under the Environmentally Sensitive Area (ESA) Scheme have already been made to farm more traditionally, further change is unlikely. Furthermore, since the 1960s the national trend away from red meat production has taken place in the lowlands. Arable cropping has increased at the expense of grassland and leads to more ploughing right up to the edge of a river bank, so encouraging silt runoff and bank instability. Also some farmers are considering switching to the intensive outdoor rearing of pigs, which leads to the stripping of all binding vegetation and increased silt runoff. We encourage farmers to follow the Ministry of Agriculture, Fisheries and Food (MAFF) Code of Good Agricultural Practice for the Protection of Soil. MAFF are preparing a Code of Good Practice for outdoor pig farming which is likely to include advice on stocking ratios.

Where riparian owners do carry out bank protection works, they frequently do so without the necessary consents. Inappropriate materials and methods are often used, spoiling the amenity of the river. Although Flood Defence legislation does make provision for enforced rectification, the procedures are unwieldy, resource-intensive and sometimes ineffective. We need to prepare bio-engineering guidance sheets to assist riparian owners to select appropriate bank protection methods to ensure any new works are effective, environmentally acceptable and sustainable (see 9.5.1).

Failures of erosion control systems will lead to increased bank erosion and loss of land. We need to raise public awareness of the erosion problem, the need for our consent and our relevant policies/responsibilities. An Agency leaflet 'Understanding River Bank Erosion' is available on request from our Customer Services Department.

Where failures of control systems occur adjacent to flood defence structures, increased risk of flooding of property may result.

Bank erosion can be very damaging to fish especially salmonids because of silt mobilisation and deposition and can lead to an unstable habitat.

We will establish a multi-functional working group to examine the feasibility of setting up a project to resolve some of the soil erosion problems in the West Somerset plan area.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
9.5.1 Prepare bio-engineering guidance sheets to assist riparian owners. Contact: Flood Defence Responsible Officer	Agency	5		●			
9.5.2 Agency to consider appropriate soil erosion control and if possible set up a multi-functional project to tackle some of the problems in this plan area. Contact: Team Leader Conservation.	Agency, riparian owners	Unknown		●			

9.6 Nitrate pollution

We are concerned that organic and inorganic nitrogen-based fertilisers applied to farmland are not all taken up by the crops and are either polluting watercourses as surface runoff (see 8.4 - The impact of agricultural discharges and runoff), or percolating through the soil and permeable rock to pollute groundwater. This can impact on the ecology of rivers, can lead to eutrophication, and sometimes lead to the closure of both public water and private drinking water supplies. We will continue to liaise with the Local Authority and Environmental Health Officers to identify potential sources of pollution of groundwater, which are affecting private supplies in the west of the area.

As required by the EC Groundwater Directive, the Government has created Nitrate Vulnerable Zones (NVZs) to protect affected sources and will produce an Action Plan of agricultural measures to achieve reductions in nitrate inputs to the land. The Agency is responsible for monitoring compliance with the Action Plan, which came into force on 19 December, 1998. There are no NVZs in this catchment at present. The Directive requires a review of zones every four years. One such review is currently taking place (1998), but a government consultation document on the outcome of the review has been delayed pending a review of the methods used to designate NVZs.

9.7 Contaminated and derelict land

From July 1999, the Environment Agency will have specific duties under the Environment Act 1995 with respect to contaminated land. This is defined as any land, which appears to a local authority to be in such a condition, because of the substances it contains, that water pollution or significant harm is being, or is likely to be, caused. This interpretation is subject to guidance issued by the Secretary of State. Some sites may become designated as 'special sites', and these will become the responsibility of the Agency. No sites have been designated yet.

At present, most contaminated land sites are remediated either at the time of redevelopment, with controls exercised through the planning process, or voluntarily, as site owners seek to reduce their own liabilities. We support the UK approach for dealing with risks to health and the environment, which takes into account the actual or intended uses of the site. This 'suitable for use' approach concentrates resources where most needed and supports the principle of sustainable development by encouraging remediation techniques for treating contaminated materials to render them less harmful, be they chemical, physical or biological. Thereby, 'brownfield' damaged land can be returned to beneficial use and help to conserve land as a resource.

The process of identifying contaminated land in a standard way across England and Wales is currently scheduled to start in July/August 1999. Once it does, the Agency has a duty to prepare and publish a report on the state of contaminated land from time to time, or if specifically requested to do so by the Secretary of State.

Periodic surveys have, however, been made of derelict land (which is not the same as contaminated land). Derelict land is considered to be land which has become so damaged by industrial or other developments that it is incapable of beneficial use without treatment. Such land includes closed and disused waste tips, worked-out mineral excavations which are not subject to enforceable planning conditions or other arrangements providing for restoration; abandoned military or service installations; abandoned industrial installations; and areas of land which are affected by actual surface collapse resulting from disused underground mining operations.

There is relatively little derelict land in this plan area and it is likely that we will not identify large numbers of contaminated land sites.

9.8

Soil acidification

Some soils, particularly those which are naturally acidic such as granite-derived soils and peat soils, are vulnerable to increased acidity. This effect is made worse by high rainfall, typically in upland areas, and also by extensive conifer plantations. If rain combines with certain airborne pollutants it becomes much more acidic and accelerates the process of soil acidification (see Section 4 - Air Quality).

The main emissions responsible for acid deposition are sulphur dioxide and oxides of nitrogen. Ammonia, which arises mainly from agriculture, also plays a part. In some parts of the UK, natural ecosystems have a significant capacity to neutralise acidity and acid deposition has little impact on them, but in acid-sensitive areas, acid rain degrades the land and causes damage to plants and soils in which they grow. Acid rain components, which contain nitrogen, have the effect of acting as a fertiliser; this can change the composition of communities of land and water plants and affect animals that live on them.

The acidification of soil also leads to the leaching out of minerals essential for plant growth, and to leaf damage. Many plants cannot survive, others are severely damaged.

The West Somerset Rivers plan area contains some small areas, which exceed the critical load - the rates of sulphur deposition, which ecosystems and other targets can tolerate in the long term without suffering damage. For soil acidity, see the Consultation Report page 36.

In 1994, a protocol was agreed under the UN Economic Commission for Europe (UNECE) to reduce exceedences of critical loads. The UK agreed to reduce its sulphur dioxide emissions by 80% from a 1980 level by 2010.

The UK's sulphur strategy published in December 1996 (Reducing Emissions of Sulphur Dioxide, A Strategy for the United Kingdom) indicates that the UK will meet interim targets for 2000 and 2005. Compliance is also expected with the 80% reduction target for 2010. Critical load exceedences, however, will continue at some sensitive sites. In January 1997 the European Commission published a draft strategy on acidification which aims to further reduce critical load exceedences for both sulphur and nitrogen (see Section 4 - Air Quality).

There are no breaches of air quality standards known to be caused by authorised Integrated Pollution Control (IPC) processes in the catchment (see Section 11 – Major Industry). Further local reductions in emissions are planned (see Section 4 - Air Quality)

For a summary of our statutory duties, powers, and interests please see section 12.6

10. Waste

Introduction – The Environment Agency regulates the treatment, recovery, storage, movement and disposal of controlled waste. Controlled waste consists of household, commercial and industrial wastes. It excludes waste from agricultural, mining and quarrying operations, waste water, explosives and radioactive wastes.

Local authorities produce Waste Local Plans which examine the land-use aspects of locating waste management facilities and the demand for sites within the area of the plan. They also produce Waste Disposal Plans which examine the types of facility needed and set out a strategy for disposal in the area.

The Government's current strategy for sustainable waste management in England and Wales is set out in a White Paper *Making Waste Work*, published in December 1995. This sets out the waste hierarchy:

- Reduction
- Reuse
- Recovery - recycling, composting, energy
- Disposal.

The overall objective is to move the management of waste up the hierarchy, thus reducing the volume of waste that is finally disposed to landfill. Landfill, however, will remain as a method of solid waste disposal in the UK for wastes that cannot be recovered and for the residue of some recovery methods such as incineration with energy recovery.

Government initiatives to move waste management up the hierarchy include legislative as well as financial incentives. The following mechanisms are already in place:

- the requirement on local authorities to draw up Recycling Plans to detail how household recycling targets are to be met;
- the Landfill Tax which was introduced on 1st October 1996.
- the Producer Responsibility Obligations (Packaging Waste) Regulations were introduced in January 1997.

The Government's latest thinking is set out in its consultation document 'Less Waste More Value?' (1998).

The Landfill Tax is enforced by HM Customs and Excise and is designed to discourage the use of landfill as a first option for waste management. There are two levels of tax, £2 per tonne for inactive (inert) wastes and £7 per tonne for all other wastes disposed of at landfill sites. The Government has recently announced that the latter figure will increase to £10 per tonne from April 1999. Landfill Tax is levied on the landfill site operators and before VAT is calculated. Site operators can contribute to enrol environmental bodies for specific projects. In return they can claim a tax credit worth 90% of any contribution, up to a maximum credit of 20% of their Landfill Tax liability.

The Producer Responsibility Obligations (Packaging Waste) Regulations 1997 are the first of a new breed of regulations to ensure that waste is recovered and recycled. These regulations place an obligation to recover and recycle certain amounts of packaging waste, based on the packaging that companies handle. Currently only companies with an annual turnover of more than £5 million and that handle over 50 tonnes of packaging each year, are obligated; from the year 2000 the turnover threshold comes down to £1 million per year. Overall the target set by the parent European Union (EU) Directive is for 50% of the United Kingdom's packaging waste to be recovered by the year 2001. Obligated companies are required to gather evidence to show that their targets have been met, and it is our job at the Environment Agency to ensure that these companies have correctly declared the packaging they handle and that they have achieved their targets. Failure to correctly declare information is a criminal offence. The regulations also encourage waste minimisation and reuse, as the less 'one trip' packaging you use, the smaller your obligation becomes. Further candidates for these producer responsibility regulations are end-of-use vehicles and waste electrical goods.

Local Action – 'The Agency's Millennium Strategy' details 14 waste management actions, nine of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 provide a high-quality waste regulation service;
- 2 develop an overall database of waste arisings and disposals;
- 3 obtain information on fly-tipping and devise means of combatting it;
- 4 implement the 'producer responsibility' regulations;
- 5 encourage and inspire industry to develop new and improved techniques for the management of special and other industrial wastes;
- 6 ensure achievement of National Waste Strategy targets for the reduction of waste disposed of to landfill;
- 7 ensure achievement of national targets for the recovery, recycling and composting of municipal waste;
- 8 secure high quality management of radioactive waste in industry (see Section 11);
- 9 ensure that any proposals for solid radioactive waste disposal will provide the necessary high-level of protection for man and the environment.

We support *Making Waste Work* and other Government and local initiatives and programmes such as the Environmental Technology Best Practice Programme sponsored jointly by the Department of Trade and Industry (DTI) and the Department of the Environment, Transport and the Regions (DETR), and we are committed to providing the best advice and encouragement for local authorities and business.

We have approached the Forestry Commission regarding the identification of frequently used fly-tipping sites. We have given them an assurance that we respond to **any** report of fly-tipping we receive.

The National Waste Arisings Survey will provide the information for the National Waste Strategy, due for production in 1999. The Strategy will be the Government's national statutory strategy on waste management for all local authorities and other public bodies. It will provide definitive guidance on best practice for waste minimisation and disposal.

The National Waste Arisings Survey started in late November 1998 and we are contributing by using stratified statistical sampling of local companies. The data will be extrapolated to produce national waste arisings figures and from these figures estimates will be made of the waste arisings within each District or Unitary Authority area. This information will be available for local authorities to plan for waste collection and disposal and will also be available to any other organisation or the general public.

The National Waste Survey is providing us with an excellent opportunity to advise companies on the new waste packaging regulations together with waste, energy and raw material minimisation. As part of the government's 'Duty of Care' provisions we deal with the registration of waste brokers and carriers and waste transfer documentation (see the Consultation Report page 49). We also register (rather than licence) the 45 classes of activities exempted under the 1994 Waste Management Licensing Regulations. These include the spreading of industrial waste to land. The person spreading the waste must demonstrate to us that there is no risk to the environment or harm to human health.

	Actions .	Action By	Cost to Agency (£K)	Financial Year				
				98	99	00	01	02
10.1	Contribute to National Waste Survey by collecting data in this plan area. Contact: Team Leader Tactical Planning	Agency	Unknown	●	●			

For a summary of our statutory duties, powers, and interests please see section 12.6

11. Major Industry

Introduction – One of the Agency's key responsibilities is Integrated Pollution Control (IPC). This process aims to prevent pollutants from major industrial processes being released into the air, water and land. Where releases do occur, we try to make sure they are minimised and made harmless. Regulations identify industrial processes that use or produce potentially harmful substances in significant amounts - known as prescribed processes and substances. Two lists of processes have been prescribed: Part 'A' are major processes controlled by the Agency using IPC and Part 'B' lists those regulated by Local Authority Environmental Health departments (see page 24 of the Consultation Report for details of Part 'A' processes in this plan area). Broadly, Part 'A' lists the industrial processes with the greatest potential to cause pollution.

A similar approach will be introduced throughout the European Union under the new Integrated Pollution Prevention and Control Directive (IPPC), which must be made law in the UK by 31 October 1999. The IPPC Directive requires members to prevent, or where that is not possible, to reduce pollution from a range of industrial and other installations, by means of an integrated permitting process based on the application of 'best available techniques'. The integrated approach takes a wide range of environmental impacts into account - emissions of pollutants to air, water and land; energy efficiency; consumption of new materials; noise, and site restoration - with the aim of achieving a high level of protection for the environment as a whole. Permits must take into account local environmental conditions at the site concerned, its technical characteristics, and its geographical location. Conditions must be included to address any transboundary pollution from an installation and also to ensure, where necessary, that any environmental quality standard laid down in EC legislation is not breached.

Before IPC was introduced, releases of prescribed substances to the different environmental media (air, water and land) were dealt with under distinct sets of rules, enforced by separate regulators. This meant that industries barred from releasing hazardous pollutants into one environmental medium (such as to water in the nearest river) might be able to divert them into another medium where perhaps less stringent rules applied (such as to air by burning or to land by burying them). There was no means of ensuring that industry acted in the way that caused least harm to the environment as a whole. The option which minimises impact on the environment as a whole is known as the best practicable environmental option (BPEO). Guidance on how to conduct such an appraisal is provided in the Agency's free publication *Best Practicable Environmental Option Assessments for IPC: A Summary*. In addition, processes have to use the best available techniques not entailing excessive cost (BATNEEC) to prevent or minimise releases of prescribed substances into the environment and render all substances harmless.

The system makes the effectiveness of IPC doubly sure by targeting entire industrial processes or sectors, not just listed substances, for systematic regulation.

Where an IPC authorisation does not cover the whole of a site, such as at Hinkley Point Nuclear Power Stations, operators may also be subject to separate regulatory permits for aspects of waste and water quality. However, the amalgamation within the Agency of the responsibility for regulations governing those aspects as well as IPC has been a further significant step in ensuring a consistent approach to environmental management.

The Environment Agency is the enforcement authority for England and Wales of the Radioactive Substances Act 1993. This statute is concerned with the keeping, use and disposal of radioactive substances and, in particular, the regulation of radioactive waste disposal. We will prosecute where breaches of a Radioactive Substances authorisation occur.

The major nuclear establishments are licensed to operate by the Nuclear Installations Inspectorate (NII), but discharges from them are authorised by the Agency. These discharges arise from the day-to-day operations at the sites. Site operators are required to ensure that discharge conditions are met and also ensure that radiation dose limits to the public are not exceeded as a result of the discharges.

There are currently two registrations under the Radioactive Substances Act in the plan area. One is for a closed source used in industrial process control and one is for a mobile closed source used in crop yield meters on combine harvesters (see the Consultation Report page 68).

The Control of Major Accident Hazards (COMAH) Regulations are needed to implement the European Directive 96/82/EC (Seveso II Directive) which will replace European Directive 82/501/EEC (the Seveso Directive) on the major accident hazards of certain industrial activities. Its aim is to prevent major accidents involving dangerous substances and limit the consequences to people and the environment of any that do occur. The Seveso II Directive retains the basic principles of major accident hazard control which underpin the Seveso Directive but addresses some weaknesses and omissions which have become apparent over the years it has been in force. The new Directive:

- places a greater emphasis on the need for effective safety management systems;
- puts specific duties on competent authorities (regulators) which should help ensure that the Directive is implemented consistently across all EU member states;
- recognises the need for land-use planning controls for new major hazard sites and on developments (such as housing) in their vicinity;
- removes various exemptions, such as chemical hazards at nuclear installations, and explosives;
- simplifies application criteria;
- is more flexible and allows for easy amendment in some areas.

Local Action – ‘The Agency’s Millennium Strategy’ details 18 actions to regulate major industries, 14 of which we are contributing to in the West Somerset Rivers plan area, and these are **quoted verbatim** below.

Locally we will:

- 1 continue the efficient and effective delivery of Integrated Pollution Control;
- 2 implement the requirements of the EC Directive on Integrated Pollution Prevention and Control;
- 3 implement the relevant requirements of the Control of Major Accident Hazards Directive;
- 4 develop practical working relationships with fellow regulators, particularly the Health and Safety Executive;
- 5 develop pollution prevention control tools including projects relating regulation to emission, efficiency and economic benefits (3 E’s project);
- 6 encourage the use by industry of EMAS ISO14001 accreditation; (*Standards for environmental management*)
- 7 encourage registration under the European Union (EU) Ecomanagement and Audit regulations;
- 8 pay special attention to the needs of small and medium-sized enterprises;
- 9 maintain and expand the Chemical Release Inventory;
- 10 play a full and active part in the EU Network for the Implementation and Enforcement of Environmental Law;

- 11 ensure that radioactive releases from nuclear sites which result in exposures to individual members of the public are well within accepted limits;
- 12 ensure that the total potential impact of releases from nuclear sites are environmentally acceptable;
- 13 ensure improvements are made to the quality of discharges to estuarine and coastal waters;
- 14 implement the requirements of the EC Urban Waste Water Treatment Directive.

11.1

The impact of oil releases from Hinkley Point power stations

We will continue to liaise with Hinkley Point to implement improvement measures previously identified to reduce the risk and frequency of oil discharges to the cooling water outlets.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
11.1 We will continue to liaise with Hinkley Point 'A' and 'B' to implement improvement measures previously identified to reduce the risk and frequency of oil discharges to the cooling water outlets. Contact: Team Leader Environment Protection West Somerset and Tone	Agency, Hinkley A & B	Unknown	●	●			

11.2

The impact of the St Regis Paper Company's Watchet Mill

The Wansbrough Paper Mill at Watchet uses a large quantity of water abstracted from the Washford River by a leat which diverts at Kentsford Farm. The water is used in both of the authorised IPC processes at the Mill, the power station and the paper process. The majority of the flow is used for "once-through" cooling, principally on the turbo/alternator for electricity generation. This flow is returned to the river immediately below the Mill in Watchet, having been heated but otherwise unpolluted. The remainder of the abstracted flow is used either as boiler feed water make-up, or in the manufacture of paper. After use, the Mill effluent contains water treatment and paper making chemicals and some paper fines so it is not returned to the river but released to the public sewer for sea disposal after primary effluent treatment. The site also has a licensed borehole, which is used during prolonged dry conditions; the water is hard and compares unfavourably to normal river water quality.

The Mill has been in existence for some 180 years and has now grown to a production capacity of over 140,000 tonnes per year. It contributes to the recovery and recycling of low grade waste papers which might otherwise be disposed of to landfill sites. The river runs through the Mill via the leat, a lagoon and culverted channels, and also around the Mill perimeter in a flood relief channel which has fish passes intended to facilitate the seasonal passage of migratory sea trout.

The principal impact is the historical problem of a large continuous water user on a small catchment which has low dry weather flows. During such conditions the leat and culverts take most of the total flow and conditions in the relief channel become difficult for fish passage. Also the thermal impact of the heat gained by the once-through cooling water becomes significant and river temperature below the Mill may approach the limit for trout and other species.

St Regis has recently evaluated the proposed installation of a closed-loop water-cooling system in the on-site power station. This would be used when river flows need to be maintained for fish migration in late summer and early autumn. The proposal has, however, been rejected in favour of using waste waters from the power generation cooling system in the pulping and paper-making process. This would mean less water is taken from the Washford River thus maintaining flow levels. Such a system would, however, tend to increase the temperature of the water in the lagoon and in waters returned to the river. A subsidiary issue for successful migration is the hatches at Kentsford Farm which are part of the structure allowing the leat to operate. Fish find it difficult to pass them except at high flows.

Most of the necessary action lies with the company, who are actively working with the Agency. They have already reduced leat flows closer to the minimum needed, by reducing unnecessary leaks and overflows as well as increasing water recycling within the Mill.

We are continuing the tripartite discussions with the Mill and Wessex Water concerning the effluent quality and the application of the Urban Waste Water Treatment Directive (UWWTD) to the combined discharge with the Watchet sewerage system. A number of options exist and further interpretation is required before the scheme can be finalised.

Under DETR instruction the Agency is forming guidance on controlling the application of exempt waste to land which includes paper waste. Research and development projects are in progress and a review of the regulations will be forthcoming.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			98	99	00	01	02
11.2.1 Continue to evaluate the Paper Mill monitoring of leat conditions. Contact: Customer Account Manager	Agency, St Regis Paper Co.	Nil					
11.2.2 Authorise and monitor the installation of a system to reuse cooling waters from power generation in the pulping and paper-making process to maintain flow levels during fish migration. Contact: Customer Account Manager	St Regis Paper Co., Agency	2.4	●	●			
11.2.3 Design and install new hatch structures at Kentsford Farm so that improved dry weather flows in the relief channel are matched with better passage for fish through the hatches. Contact: Customer Account Manager	Agency, St Regis Paper Co.	Unknown	●	●			
11.2.4 Ensure appropriate treatment to the quality of effluent discharges from the Mill and the Watchet sewerage system (see Action 8.6.4). Contact: Team Leader Environment Protection West Somerset & Tone	Agency, WWSL, St Regis Paper Co.	-	-	-	-	-	-

For a summary of our statutory duties, powers, and interests please see section 12.6

12. Appendices

12.1 Our River Quality Objective (RQO) targets

River	Stretch Name	Stretch Ref No.	RQO	LTRQO
Hawcombe Stream	Hawcombe Head to sea	1	1	
Horner Water	Nutscale Reservoir to confluence with Aller	2	1	
Aller	Source to sea	3	1	
Avill	Source to confluence with Wootton Courtenay Stream	4	1	
	Confluence with Wootton Courtenay Stream to sea	5	2	
Avill Tributary (Timberscombe Stream)	Source to confluence with River Avill	6	2	
Wootton Courtenay Stream	Hanny Combe to confluence with Avill	7	1	
Pill	Source to Chapel Cleeve	8	3	2
	Chapel Cleeve to sea	9	4	2
Traphole Stream	Downstream Mineral Line fish-farm to confluence with Washford River	10	1	
Washford River	Chargot House to Roadwater	11	1	
	Roadwater to Watchet	12	1	
	Watchet to sea	13	2	
Doniford Stream	Flaxpool to confluence with Willett Tributary	14	2	
	Willett to confluence with Flaxpool Tributary	15	2	
	Willett/Flaxpool Tributary confluence to confluence with Monksilver Stream	16	2	
	Confluence With Monksilver Stream to Estuary	17	1	
Monksilver Stream	Combe Sydenham to Monksilver	18	1	
	Monksilver to confluence with Doniford Stream	19	1	
Kilve Stream	Holford to sea	20	1	

LTRQO - Long term river quality objective to be achieved by some future date.

12.2 Protection through partnership

The Agency works in partnership with many organisations and individuals concerned with the protection and enhancement of the environment. In the UK as a whole much has been achieved already, but much more is possible by working closely with others. The Agency is essentially a regulatory body and does not give grants, so to achieve some of its aims it must co-operate with others such as the local authorities and Ministry of Agriculture, Fisheries and Food (MAFF) to harness their financial resources and technical expertise. The Agency can also work towards its objectives by working with voluntary groups such as the local wildlife trusts and recreational associations. In some cases partnerships are already well established with other statutory bodies, especially where there is joint responsibility such as the Internal Drainage Boards (IDBs).

This section outlines some of these partnerships and indicates opportunities for further development.

12.2.1

Links with local authorities – We advise the local planning authorities on the impact of proposed development, together with our requirements for environmental protection (see Section 19, page 55 of the Consultation Report). We also work with the local planning authorities to ensure that suitable policies to protect and enhance the environment are incorporated within Local Development Plans, land drainage, flood warning procedures, oil pollution plans and emergency plans.

- 12.2.2 Air quality** – The Agency and local authorities are both responsible for aspects of air quality monitoring and management, although local authorities are responsible for producing and implementing Local Air Quality Management Plans. We will work with them and others to develop and implement these Local Air Quality Management Plans.
- 12.2.3 Amenity and recreation initiatives** – We work on local authority led recreation initiatives. Local authorities often own the riverside land in towns and we work with them on schemes to enhance the town centre river corridor with, for example, landscaping, walkways and riverside seating. As part of such schemes, nature conservation can be furthered by enhancing or creating wildlife habitats.
- 12.2.4 Litter** – The Agency has no powers or resources to clear litter in and around rivers, unless it could cause an obstruction to flood flows.
- 12.2.5 Local Agenda 21** – Across the catchment, all local authorities are assisting their local communities in developing local strategies and action plans for sustainable development. The approach adopted varies from district to district, with many Local Agenda 21 (LA21) groups setting up working groups looking at specific issues. We feel that we can be most effective in assisting local communities in developing their Local Agenda 21 plans by offering expert advice on the state of the local environment. We can also supply some of the information that LA21 groups want; a leaflet is available from our Customer Contact Team.
- 12.2.6 Shoreline Management Plans (SMPs)** – SMPs are being produced by a range of groups including the Agency and Local Authorities with statutory interests working together. They provide a forum for an integrated review of coastal processes and develop sustainable coastal defence policies to set objectives for the future management of the shoreline. The SMP that includes the coast within this LEAP is called the Bridgwater Bay to Bideford Bay SMP (see Section 6 - Biodiversity).
- 12.2.7 Working with businesses** – We are working in partnership with local businesses to promote pollution prevention and waste minimisation. Examples include:
- our '3 Es' campaign (Emissions, Efficiency, Economics) which aims to reduce waste, packaging, effluent and energy use and thereby both help the environment and save the business money;
 - farm waste management plans developed with farmers and the Farming and Rural Conservation Agency (FRCA);
 - our oil care campaign;
 - pollution prevention guidelines which give advice relating to specific industries and activities e.g. dairies, vehicle service centres, surface water drainage;
 - promoting the Government's Environmental Technology Best Practice Programme. Industries can call Freephone 0800 585794 for up to two hours of free advice on saving money through waste minimisation and energy efficiency measures;
 - Best Management Practices. These are environmentally friendly methods of treating urban runoff, such as grass swales, reedbeds and retention ponds, which offer opportunities for habitat creation;
 - our work with the Farming and Wildlife Advisory Group (FWAG) to promote environmentally friendly farming practices.
- 12.2.8 Conservation** – The Agency welcomes partnerships with other government bodies like MAFF through schemes such as Countryside Stewardship, the aim of which is to offer payments to landowners for the conservation of the countryside.

Dunster Marshes - Somerset Wildlife Trust have put forward a proposal to us to examine the feasibility of changing the water level management regime to enhance and improve this grazing marshland. There is a great potential to attract birds because of its coastal location. For this project to be successful it would require the co-operation of the farmers, Dunster Drainage Board, Somerset Wildlife Trust and the Agency.

The Agency is a member of the Porlock Marsh Working Group, an informal partnership set up to co-ordinate the management of Porlock shingle beach and marsh. The other members include the two major landowners, which are the National Trust and Porlock Manor Estate, English Nature, Exmoor National Park Authority and West Somerset District Council.

12.2.9

Education – We recognise that broad-based education covering the community, educational and industrial sectors will result in a more informed society that is better able to understand the environment, its needs, and the impact of society's activities upon it. In particular, there is a need to:

- educate young people to equip them to make informed judgements about future environmental decisions;
- educate industry through consultation, collaborative activities and targeted campaigns to promote a culture of prevention rather than cure;
- raise public awareness of environmental issues to engender in society a common ownership of the environment and its challenges.

Each region has recently appointed an Education Co-ordinator to promote our education strategy at a local level. Our Customer Services Department can provide a list of available resources for schools. This includes packs relating to Key Stages 1 and 2/3 and activity booklets for younger children. We are also looking into more efficient ways to deliver environmental education for example offering training days to teachers.

Currently, we provide a wide range of information to all sectors of society, and in addition give many talks and presentations. The Agency has published a leaflet entitled 'Green shoots - Our vision for Environmental Education'.

Promoting these LEAPs raises awareness of environmental issues with the local community. Each LEAP is guided by a Steering Group whose members are drawn from our key customers locally and include: English Nature, Country Landowners Association (CLA), National Farmers Union, Internal Drainage Boards, local authorities, industry, waste management companies, Wildlife Trusts, fisheries interest, British Canoe Union (BCU), water companies and education.

We run a 24-hour service for receiving reports of, and responding to, flooding and pollution incidents and emergencies in the air, water and on land. Our Pollution Hotline is 0800 80 70 60.

12.3

Area Environment Group (AEG)

Name	Representing
Mr L R Fortune	Chairman, appointed by Environment Agency
Mr M J Stoodley	Regional Committee Member
Mr J Comer	Regional Committee Member
Mr R W Wyatt	Water Resources
Mr S Hemmings	Waste Management
Mr M Hellings	Waste Management
Mr D Fish	Industry
Mr M W Minshall	Industry
Councillor N Jones OBE	Tourism

Ms J C Brookhouse	Conservation
Mrs A M Lennox	Recreation
Mr J L R Williams	Fisheries
Mr J B H Watkis	Flood Defence
Mrs L Bennett	Local Authority
Ms J Smith	Local Authority
Mr H P N Temperley	Local Authority
Mr C S W C Newbury	Local Authority
Professor G P Hammond	Education
Mr W H Warmington	Agriculture

12.4

Steering Group

Name	Representing
Mr A Case	Dunster Drainage Board
Mr M Edgington	English Nature
Mr D Fish	Industry
Dr C Hancock	Somerset Wildlife Trust
Mr A Hawkins	National Farmers Union
Mr P Higginson	British Energy
Mrs A Lanigan	Country Landowners Association
Mr P Lee	Waste Management
Mr D Lloyd	Exmoor National Park Authority
Mr R Moon	Somerset County Council
Mr T Shaw	West Somerset District Council
Mr D Thomas	West Somerset District Council
Mr M Venning	Wessex Water Services Ltd
Mr J Williams	Fisheries

Organisations responding to the public consultation

National Organisations

British Trust for Ornithology
 The Coal Authority
 The Inland Waterways Association
 The Royal Town Planning Institute
 The Hawk and Owl Trust
 British Canoe Union (BCU)
 Ministry of Agriculture, Fisheries and Food (MAFF)

Local Authorities/ Parish Councils

West Somerset District Council

Regional and Local Organisations

English Nature
 The Forestry Authority
 Council for the Preservation of Rural England (CPRE)
 Office of Water Services (OFWAT)
 The Ramblers' Association (Avon)
 Countryside Landowners Association (CLA)
 Royal Society for the Protection of Birds (RSPB)

A further six written responses were also received from members of the public.

A copy of the summary report can be obtained by writing to Alan Turner, Team Leader LEAPs (see address inside front fold-out map).

12.5 Guide to Consultation Report and Action Plan Issues

Former Consultation Report Issue	Number in this Action Plan
4.1 Development Pressure	
4.1a Complete the detailed hydraulic analysis of those watercourses in West Somerset likely to be affected by development pressure	Completed September 1997
4.1b On completion of the analysis advise the Local Planning Authority on the level of flood risk associated with land use allocations in West Somerset and seek the earliest possible discussions with new developers and the local planning authorities to advise on the best environmental options for proposed developments.	9.1.1
4.1c Work in partnership with West Somerset District Council to improve their environmental protection policies and work towards a more sustainable type of development.	9.1.2
4.1d Enforce discharge consents and IPC authorisation, and where necessary review.	Ongoing
4.1e Work with Wessex Water Services Ltd (WWSL) to prioritise their expenditure at STWs.	8.6
4.1f Work with water supply companies to prioritise expenditure on water resource management and development.	5.1
4.1g Survey waste arisings to provide a basis for waste planning.	10.1
4.1h Advise waste disposal authorities and local industry on the best practice for waste minimisation and disposal.	10.2
4.2 Use of Agency Owned Land	
4.2a Investigate the amount of information available to visitors.	8.7.1
4.2b Liaise with English Nature and produce a joint information leaflet.	8.7.1
4.2c Look into providing interpretative sign boards for the area.	8.7.1
4.2d Investigate possibility of a circular walk.	8.7.2
4.3 Maintaining and Enhancing Biodiversity	
4.3a Porlock Marsh - monitor change of habitat from grazing marsh and reedbed to salt marsh/saline lagoon.	6.1
4.3b Headwater streams - survey to assess value and develop conservation strategy.	6.2
4.3c Dunster Marsh - encourage a move towards rehabilitating grazing marsh through the Countryside Stewardship Scheme and County Wildlife Sites Project.	Advisory role only – see text
4.3d Investigate enhancement schemes to increase biodiversity as part of capital schemes. Evaluate managed retreat option when investigating coastal defence projects.	6.0
4.3e Water-voles - increase our knowledge of distribution and investigate the main reasons for the absence of the water-vole from large areas of the catchment.	6.3
4.3f Otters – assist with the monitoring of otter populations.	6.4
4.3g Otters – identify road casualty blackspots and investigate best remedial action.	6.5
4.3h Otters – analyse tissue of road casualties.	6.5
4.3i Otters – establish water quality objectives necessary to maintain populations.	See text
4.3j Collate data on status and distribution of native crayfish and river lamprey and protect known habitats.	6.7
4.3k Invasive plants - work with Flood Defences to seek to eradicate Japanese knotweed from the Hawkcombe Stream and any other watercourses where it is found. Control other species where they become a problem.	6.8

Former Consultation Report Issue		Number in this Action Plan
4.3l	Sea trout - ensure that the migration of sea trout is not obstructed and that spawning areas are protected.	7.1
4.3m	Black poplar - assess status in catchment.	6.6
4.4	The Impact of the St Regis Paper Company's Watchet Mill	
4.4a	Continue to monitor leat conditions.	11.2.1
4.4b	Complete the evaluation of installing a closed-loop water-cooling system to be used when warranted by the impact on the river at a time of expected fish migration (probably late summer/early autumn). This may also offer the company some operational benefits.	Completed
4.4c	Design and/or make improvements to the structures at Kentsford Farm so that improved dry weather flows in the relief channel are matched with better passage through the hatches.	11.2.3
4.5	Horner Water - Suffers from Bed Loss	
4.5a	In order to investigate the relative impacts of the natural bed losses and of the Wessex Water abstraction on flows on the Horner Water we will initially review the analysis of Bossington Well test pumping which was undertaken when the licence was issued in 1976. However, we consider this is a low priority low flow issue compared with others in the Region.	8.3.1 and 8.3.2
4.6	Somerwest World, Minehead - Surface Water Disposal	
4.6a	Liaise with Somerset World to ensure the wider aspects of upgrading the drainage system are considered.	9.3.1
4.6b	Ensure the Dunster Drainage Board and Local Drainage Authority provides input to drainage studies.	9.3.2
4.7	Flooding and the Need for an Improved Flood Warning Service	
4.7a	Review those properties receiving flood warnings under the new Agency flood warning service.	8.1.2
4.7b	Target standards of flood protection to urban development will be compared to current risk.	8.1.1
4.7c	Review allocated land for development in the Local Plan to determine flood risk and possible mitigation works.	8.1.2
4.8	River Bank Erosion	
4.8a	Raise public awareness of the erosion problem, the need for our consent and our relevant policies/responsibilities e.g. Agency leaflet 'Understanding River Bank Erosion'	Ongoing, see text
4.8b	Prepare bio-engineering guidance sheets to assist riparian owners to select appropriate bank protection methods to ensure any new works are effective, environmentally acceptable and sustainable.	9.5.1
4.8c	Agency to repair erosion control works which protect our flood defence assets and riparian owners to carry out all other erosion control work.	8.3.2
4.9	Flooding in Williton	
4.9a	Carry out an appraisal to determine if improvement works are technically, economically and environmentally viable.	9.4.1
4.9b	Options for improvement: (a) channel improvements through Williton; (b) flood relief bypass channel; (c) upstream off-line detention dams; (d) or a combination of all three.	9.4
4.9c	Review the need for, or operation, of sluices.	9.4.1
4.10	Securing Future Public Water Supplies	
4.10a	Encourage water company demand and resource management.	5.1

4.10b	Encourage consumers to undertake water-saving actions.	5.1.2
4.10c	Assess need for potential future resource development and implications during WWSL's third periodic review and subsequent revision of our Regional Water Resource Strategy (Year 2000).	5.1.1
4.11	Unknown Causes of Poor Water Quality	
4.11a	Investigate to identify the reasons for the failures.	8.2.1
4.11b	Investigate the reasons for the slight downgrading in biological quality.	Deleted, see text
4.12	Impact of Agriculture	
4.12a	Investigate farm inputs to the River Pill.	8.4.1
4.12b	Monitor the effect of recent improvements to some farms in the catchment.	8.4.1
4.13	Impact of Septic Tanks	
4.13a	Investigate septic tank inputs to the River Pill.	8.5.1

12.6 Duties, powers and interests of the Environment Agency

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

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p>Water Resources</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"> ● Grant or vary water abstraction and impoundment licences on application. ● Revoke or vary existing licences to reinstate flows or levels to surface waters or groundwater which have become depleted as a result of abstraction, and are subject to a liability for compensation. 	<ul style="list-style-type: none"> ● The more efficient use of water by water companies, developers, industry, agriculture and the public and the introduction of water efficiency measures and suitable design and layout of the infrastructure. 	<ul style="list-style-type: none"> ● The Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water. The Agency acknowledges that new resources may be needed in the future and supports a twin-track approach of planning for water resource development alongside the promotion of demand-management measures. The Agency seeks to influence planning decisions for new development by encouraging the inclusion of water conservation measures in new properties, particularly in areas where water resources are under stress, and by ensuring that planning authorities allow for the lead time for resource development.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p>Flood Defence 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"> ● Control, through Land Drainage consents, of development within 8 m of main river (Water Resources Act 1991, Section 109) or construction of a structure that would affect the flow of an ordinary watercourse (Land Drainage Act, 1991 Section 23). ● Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991. ● Undertake works to main rivers using permissive powers. ● Issue flood warnings relating to main river to the public, local authorities and the police. ● Consent mineral working within 16 m of main rivers. 	<ul style="list-style-type: none"> ● Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by local planning authorities. ● Installation of surface water source control measures e.g. flood attenuation structures. ● Supervising the maintenance of ordinary watercourses which is a local authority remit, but may impact on main rivers. ● Installation of buffer zones which reduce flood risk and have significant environmental benefits. ● Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance. 	<ul style="list-style-type: none"> ● As a statutory consultee on planning applications within main river floodplains the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts of proposed floodplain development. ● The Agency will encourage best practice, including source control measures and common standards, among local authorities and riparian owners to protect and enhance the environment. The Agency works with the civil authorities to prepare flood warning dissemination plans and supports their endeavours to protect communities at risk.

Water Quality
The Agency has a duty to monitor, protect, manage and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.

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

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
<p>Contaminated Land The Agency has a duty to develop an integrated approach to the prevention and control of land contamination, ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.</p>	<ul style="list-style-type: none"> ● Regulate the remediation of contaminated land designated as special sites. ● Prevent future land contamination by means of its IPC, Water Quality and other statutory powers. ● Report on the state of contaminated land. 	<ul style="list-style-type: none"> ● Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land. 	<ul style="list-style-type: none"> ● The Agency supports land remediation and will promote this with developers and local authorities and other stakeholders.
<p>Conservation The Agency will further conservation, wherever possible, when carrying out water management functions; have regard to conservation when carrying out pollution control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.</p>	<ul style="list-style-type: none"> ● The Agency has no direct conservation powers but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation. 	<ul style="list-style-type: none"> ● The conservation impacts of new development. These are controlled by local planning authorities. ● Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to local authorities and developers to protect the integrity of such sites or species. ● Implementation of the UK Biodiversity Plan for which it is the contact point for twelve species and one habitat. 	<ul style="list-style-type: none"> ● The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation. The Agency will work with developers, local authorities, conservation bodies and landowners to conserve and enhance biodiversity.
<p>Landscape The Agency will further landscape conservation and enhancement when carrying out water management functions; have regard to the landscape when carrying out pollution control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.</p>	<ul style="list-style-type: none"> ● The Agency must further the conservation and enhancement of natural beauty when exercising its water management powers and have regard to the landscape in exercising its pollution control powers. 	<ul style="list-style-type: none"> ● The landscape impact of new development, particularly within river corridors. This is controlled by local planning authorities. 	<ul style="list-style-type: none"> ● The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with local authorities and developers to conserve and enhance diverse river landscapes.
<p>Archaeology The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.</p>	<ul style="list-style-type: none"> ● The Agency must promote its archaeological objectives through the exercise of its water management and pollution control powers and duties. 	<ul style="list-style-type: none"> ● Direct protection or management of sites of archaeological or heritage interest. This is carried out by local planning authorities, County Archaeologists and English Heritage. 	<ul style="list-style-type: none"> ● The Agency will liaise with those organisations which have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests.

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

12.7

Units

1cm	centimetre
9m ³ /s	cubic metres per second (cumecs)
14Ml/y	megalitres per year
2ha	hectare
10mg/l	milligrams per litre
15mm	millimetre
3km	kilometre
20µg/l	micrograms per litre
16mpg	miles per gallon
4km ²	square kilometre
11mg/m ²	milligrams per square metre
17ppb	parts per billion
5kWh/m ²	Kilowatt hours per square metre
6l/s	litres per second
21µg/ m ³	microgram per cubic metre
18ppm	parts per million
7m	metre
12ml	millilitre
19t	metric tonne
8m ³ /d	cubic metres per day
13Ml/d	megalitres per day

13. Useful Publications

- A Guide to Information Available to the Public, Environment Agency
- Cordrey L (ed) (1997) Action for Biodiversity in the South-West - a series of habitat and species plans to guide delivery, June 1997 ISBN 0903138972
- 'Air Quality A to Z' June 1995, Meteorological Office and Air Quality Division, Department of the Environment (DoE) ISBN 0861803175
- Control of Pollution Act 1974
- Control of Pollution (Amendment) Act 1989
- DoE Circular 30/92 Development and Flood Risk
- EC Directive on pollution caused by the discharge of certain dangerous substances into the aquatic environment (76/464/EEC)
- EC Directive on freshwater fish (78/659/EEC)
- EC Directive on the conservation of wild birds (79/409/EEC)
- EC Directive on the protection of groundwater against pollution caused by certain dangerous substances (80/68/EEC)
- EC Directive on air quality standards for nitrogen dioxide (85/203/EEC)
- EC Directive concerning urban waste water treatment (91/271/EEC)
- EC Directive concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC)
- EC Directive on species and habitats (92/43/EEC)
- Environment Act 1995
- Environment Agency (1998) 1997 – 1998 annual review. HO-8/98-16k-D-BCPX
- Environment Agency (1998) 1999/2000 corporate plan summary. HO-8/98-16k-D-BCQI
- Environment Agency (1998) Annual Environmental Report for the Agency's Own Activities 1997/98 – Summary. HO-8/98-10k-C-BDGX
- Environment Agency (1997) An Environmental Strategy for the Millennium and Beyond, HO-9-97-100K-D-BABF
- Environment Agency (1998) A Price Worth Paying. The Environment Agency's proposals for the National Environment Programme for water companies 2000 – 2005, a submission to government, May 1998. HO- 5/98-2k-C-BCKZ
- Environment Agency (1998) Corporate Plan 1999 – 2000, Our Forward Look to 2002. HO-8/98-3k-A-BCQG
- Environment Agency (1997) Integrated Pollution Control: An Introductory Guide. HO-12/97 – 10k-C-AZWT
- Environment Agency (1997) Liaison with Local Planning Authorities. HO-3/97-3.5k-C-AXFI
- Environment Agency (1997) Minehead Sea Defences Scheme – Taming the Tempestuous Tide – SW-4/97-5k-D-AYPB
- Environment Agency (1997) Policy and Practice for the Protection of Floodplains. HO-01/97-10k-B-AXFQ
- Environment Agency (1998) Policy and Practice for the Protection of Groundwater. J 40899 4/98
- Environment Agency (1998) South West Regional Pollution Prevention and Control 1997 General Quality Assessment (GQA) and River Ecosystem
- Environmental Protection Act 1990

- Guidance for the Control of Invasive Plants near Watercourses, Japanese Knotweed, Giant Hogweed and Himalayan Balsam. HO-9/94-20k-C-AKVI
- Land Drainage Act 1991
- NRA (1995) Tomorrow's Water, NRA South Western Region Water Resources Strategy. SW-4/95-1k-B-ANOQ
- NRA (1995) Saving Water - The NRA's Approach to Water Conservation and Demand Management. HO-9/95-1.5k-B-AQHH
- Radioactive Substances Act 1993
- Salmon and Freshwater Fisheries Act 1975
- Non-Compliance, North Wessex Area. Water Quality Technical Series GQA/RE11G
- The Biodiversity of the South-West - an audit of the South-West biological resource, May 1996 ISBN 0903138920
- The Environment Agency and Sustainable Development - MAFF B9709 November 1996 96EP189/1
- The Environment of England and Wales - A Snapshot 1996, Environment Agency HO-4/96-5K-A-ATVT (updated on Agency Website)
- The Water-Vole (*Arvicola terrestris*) in Britain 1989-1990: Its Distribution and Changing Status, The Vincent Wildlife Trust
- Understanding Buffer Strips - Environment Agency HO8965KDAVJK
- Waste Management Strategy for Somerset, 1996
- Waste Minimisation and Recycling Directory 1998 - North Wessex Area - Environment Agency SW1/98-5K-E-BAOT
- Water Resources Act 1991
- West Somerset Rivers Local Environment Agency Plan (LEAP) consultation report February 1998 - Environment Agency SW-2/98-2k-E-BAKG
- Wildlife and Countryside Act 1981 HO-6/94-5k-C JTG
- Control of Pesticide Regulations 1986. SI 1510
- Health and Safety at Work Act 1974
- The Control of Pollution (Special Waste) Regulations 1980. SI 1709
- Sludge (Use in Agriculture) Regulations. 1989 SI 1263
- Code of Practice for the Safe Use of Pesticides on Farms and Holdings. 1990 MAFF
- Code of Good Agricultural Practice for the Protection of Air. 1992 MAFF/WOAD
- The Forests & Water Guidelines 1993
- Code of Good Agricultural Practice for the Protection of Water. 1993 MAFF/WOAD
- Code of Good Agricultural Practice for the Protection of Soil. 1993 MAFF/WOAD
- Waste Management Licensing Regulations. 1994 SI 1056
- Making Waste Work. 1995 Department of the Environment and The Welsh Office
- Biodiversity: the UK Steering Group Report. 1995 London, 2 Vols.
- The Special Waste Regulations. SI 972 1996
- A Review of the Potential Effects of Climate Change in the United Kingdom. 1996 UK Climate Change Impact Review Group
- Other information is available from our website at <http://www.environment-agency.gov.uk> including an up-to-date national 'State of the Environment Report.'

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.

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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



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