EA-South West LEAPs

local environment agency plan

WEST SOMERSET RIVERS

1ST ANNUAL REVIEW

JUNE 2000

ENVIRONMENT AGENCY

Map 1 - West Somerset Rivers Catchement

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1. Introduction

1.1. West Somerset Rivers First Annual Review

This is the first Annual Review of the West Somerset Rivers Local Environment Agency Plan. It provides a summary of the Environment Agency's progress on actions set out in the Action Plan. More detailed background information is provided by the previous publications relating to this catchment:

- West Somerset Rivers Consultation Report February 1998
- West Somerset Rivers Action Plan February 1999

The Bridgwater Bay to Bideford Bay Shoreline Management Plan (SMP) also covers the West Somerset Rivers catchment coastline. Shoreline Management Plans are being produced by a range of groups working in partnership, including the Agency and local authorities, to set objectives for the future management of the shoreline. They provide a forum for an integrated review of coastal processes, and the development of sustainable coastal defence policies.

The Flood Defence Committee has now adopted the Shoreline Management Plan. The plan will be updated in five years, following further monitoring and additional studies. Also starting this year is the Bridgwater Bay Stability Study, which will look at sediment transport.

1.2. The Environment Agency

The Environment Agency is a non-departmental public body established by the Environment Act of 1995, and formed on 1 April 1996. We are sponsored by the Department of the Environment, Transport and the Regions (DETR).

We have taken over the functions of our predecessors: the National Rivers Authority (NRA); Her Majesty's Inspectorate of Pollution (HMIP); the Waste Regulation Authorities (WRAs) and some parts of the Department of the Environment (DoE), as it was then.

We have a wide range of duties and powers relating to different aspects of environmental management. These are given in detail in Appendix 12.1. Government requires that we help achieve the objectives of sustainable development, defined as *development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*

Taking a long-term perspective will require us to anticipate risks and encourage precautions, particularly where irreversible or long term impacts on the environment are concerned. We must also develop our role to educate and inform society as a whole to *think globally but act locally*, as well as carrying out our prevention and enforcement activities.

We also work in partnership with those who share common objectives, to ensure the continuing protection and enhancement of the environment.

Our vision is:

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

Our aims are to:

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

We will do this by:

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

1.3. Local Environment Agency Plans

We are committed to a programme of Local Environment Agency Plans (LEAPs), which allow us to produce our local programme of integrated actions for environmental improvement. LEAPs are based on river catchment areas, and replace the National Rivers Authority Catchment Management Plans (CMPs).

LEAPs help us to identify and assess, prioritise and solve those local environmental issues within our remit and related to our functions. They also allow us to take into account the views of our local customers through a consultation process. As a result, LEAPs help us to deploy our resources to best effect and optimise benefit for the local environment. The LEAP process involves several stages as outlined below.

Consultation Draft:
The West Somerset Rivers Consultation Draft was published in February 1998, beginning a three-month period of public consultation. The purpose of the consultation period is to allow the Agency, external organisations and the public to liaise and reach a consensus about the management of the LEAP area. We consulted approximately 200 organisations and individuals and received 21 formal responses. These responses are summarised in our Report on Public Consultation, which is available on request.

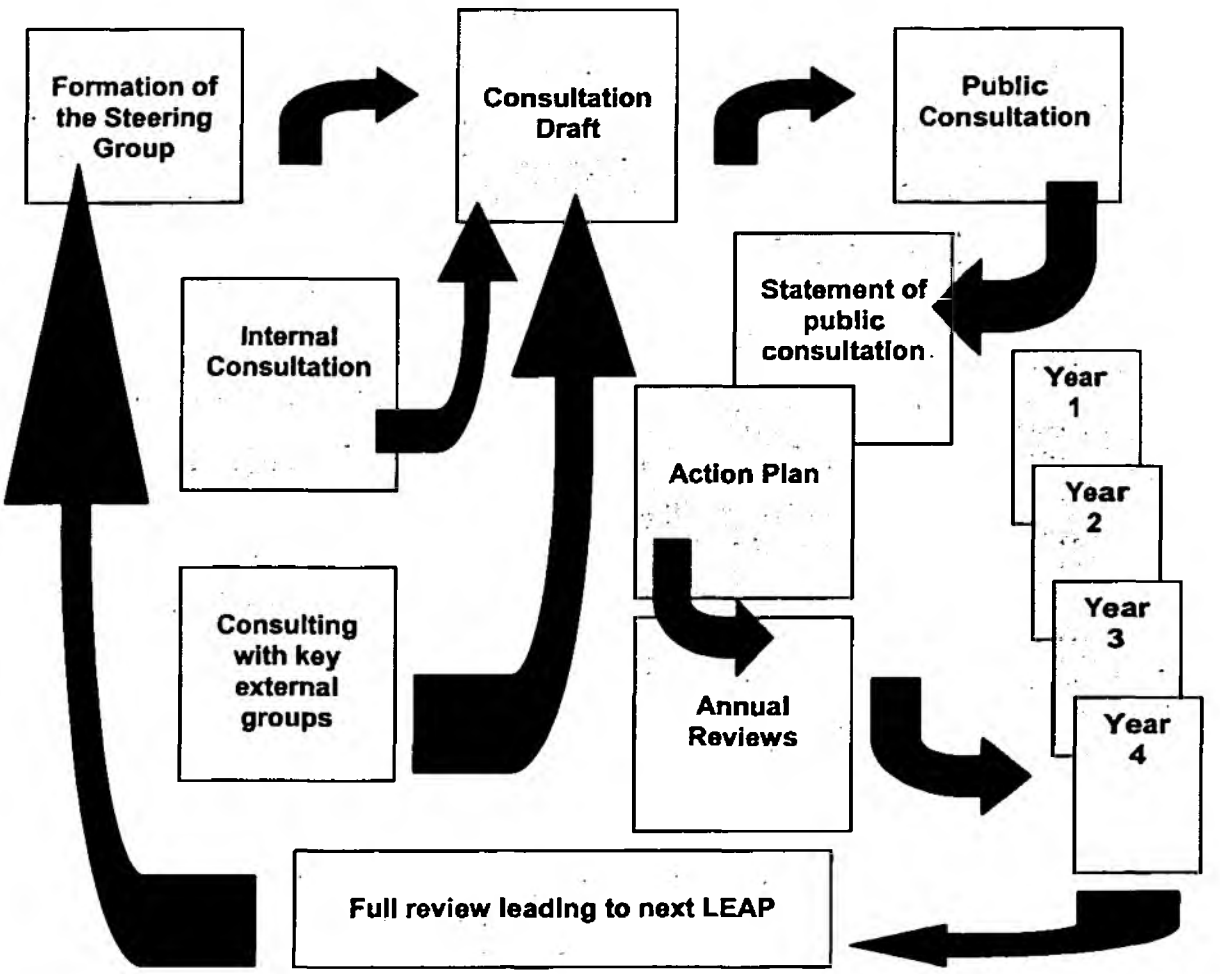
- **Action Plan:**

The West Somerset Rivers Action Plan was published in February 1999 and takes into account the views expressed during the consultation process. It outlines how the Agency and other organisations plan to deal with issues that affect the environment within the West Somerset Rivers catchment over a period of five years.

- **Annual Reviews:**

This is the first Annual Review for the West Somerset Rivers catchment, and reports on the progress in carrying out our planned actions. This is also an opportunity to address new issues and actions as they arise. The annual review process will be carried out for five years, at which point we will launch a new consultation report. This process is currently under review and may change in the future.

Figure 1: The LEAP Process



We invite readers to contact us at any time to raise new issues or suggest new actions; this ensures the LEAP process is a live one, which constantly evolves to meet the changing needs of the local environment.

1.4. The LEAP Steering Group

The LEAP Steering Group represents a range of interests who review the Consultation Report and Action Plan prior to public release. They monitor the implementation of the Action Plan and provide the Agency with specific advice on the importance of issues within the Plan area. The Steering Group acts as a communication link between the local community, the Agency and its committees, and also helps to promote and develop initiatives of benefit to the environment within the catchment. The Steering Group members for the West Somerset Rivers LEAP are:

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
Mrs A Lanigan	Country Landowners Association
Mr P Lee	Waste Management
Mr D Lloyd	Exmoor National Park Authority
Mr T Shaw	West Somerset District Council
Mr M Venning	Wessex Water
Mr J Williams	Fisheries
Mr K Staples	Magnox Electric plc

1.5. West Somerset Rivers catchment overview

The catchment extends from Foreland Point in the west to Hinkley Point Nuclear Power Station, covering an area of approximately 320km^2. The catchment includes all of 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 94.7km of rivers in the West Somerset Rivers catchment. Biological data is monitored every five years and chemical quality is measured annually.

The Exmoor National Park (ENP) and the Quantock Hills Area of Outstanding Natural Beauty (AONB) are nationally recognised designations, while most other areas are designated as a Special Landscape Area (SLA) to which certain Local Plan policies apply. Exmoor is also designated as an Environmentally Sensitive Area (ESA). The coast between Minehead and Foreland Point is designated as Heritage Coast.

Some sites within the catchment are designated as Natura 2000 sites under the European Community Habitats Directive (1994). The Natura 2000 sites within the catchment are Exmoor Heaths and part of Bridgwater Bay, which forms part of the Severn Estuary Special Protection Area/RAMSAR/possible Special Area of Conservation.

The Severn Estuary is a consideration although it is largely outside of the catchment boundary, as the rivers within the catchment drain into the estuary and may therefore impact on the site.

The high moors of central Exmoor are surrounded by a more managed landscape of woodland and hill farm pasture enclosed by hedgebanks. From the moorland flow some of the West Somerset Rivers which follow a predominantly natural course through steep sided, naturally wooded combes which are characteristic of the area.

Towards the east the river valleys become wider and the gradient less steep. The easternmost part of the catchment is on the western edge of Bridgwater Bay, and is relatively flat with large areas of sand and mud exposed at low tide. Hogs-backed ridges and sea cliffs mark the Exmoor coastline, with bays along the coast, and a shingle ridge at Porlock.

The Quantock Hills consist of a broad ridge of sandstone that ends at the coast, forming cliffs. The Quantocks straddle three LEAP catchment areas, with only the most northern part being within the West Somerset Rivers area.

The West Somerset Rivers catchment represents a major resource for informal recreation, both for local communities and for tourists, tourism being a major industry in the area. The main recreational activities include walking, cycling and horse riding, and the area is well served by footpaths and other rights of way, many of which run alongside rivers and streams. The Exmoor National Park Plan recognised inland water as a great attraction for visitors, providing a focus for informal recreation. The coast is a traditional attraction for tourists, focusing on Minehead, Porlock Weir, Blue Anchor, Kilve and Watchet.

2. Progress Report

2.1. Action Plan monitoring report

The following sections provide a summary of our progress to date on the nine environmental themes identified in the Action Plan:

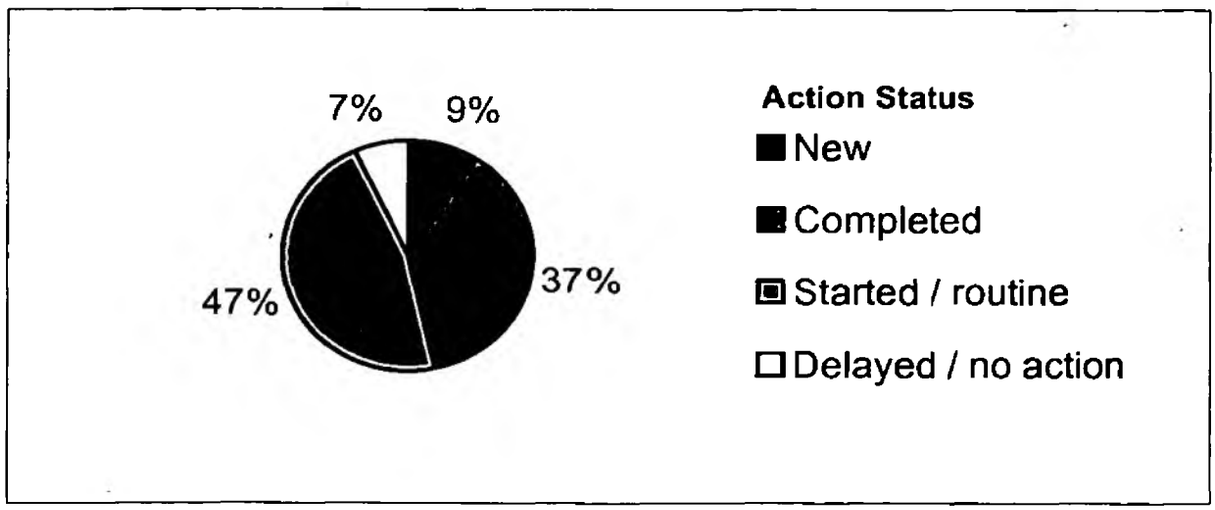
- Climate Change
- Air Quality
- Water Resources
- Biodiversity
- Fisheries
- Integrated River-Basin Management
- Conserving the Land
- Waste
- Major Industry

The tables show the progress we have made on specific actions. So far, 45 of the 54 actions (83%) have been started or completed. The actions have been identified as:

N	New Action	5
C	Completed action	20
S	Started / ongoing action	25
D	Delayed / no action	4

The following chart summarises the progress we have made since the Action Plan was launched in February 1999. Some actions are ones that we will carry out every year and so will not be completed during the life of this Annual Review. We will however continue to report on the progress of these actions, along with those that have a fixed time scale.

Figure 2: Summary of progress (%)



2.2 Resources

Where possible, the estimated costs of actions for the catchment have been given. All costs are given as thousands of pounds (£k) and include staff time. The costs given are indicative only, and do not indicate that this money has been committed. The following figures, presented in the Agency's Corporate Plan 2000/2001, have been included to give an indication of available resources and expenditure on Agency functions nationally, to provide a context for spending priorities in the West Somerset Rivers catchment.

Figure 3: National expenditure

National Expenditure £ m	2000/01 Planned	2001/02 Estimate
Water management		
Flood defence	286.6	285.6
Water resources	94.3	96.8
Fisheries	24.0	22.9
Conservation	3.7	3.8
Conservation collaborative projects	1.2	1.2
Navigation	7.1	7.2
Recreation	2.1	2.1
Environmental protection		
Process industries regulation (PIR)	24.4	20.2
Radioactive substances regulation (RSR)	10.0	10.1
Integrated pollution prevention and control (IPPC)	13.5	22.5
Waste	70.1	71.3
Water quality	96.7	95.4
Land quality	5.4	5.5
Contaminated land project expenditure	0.8	0.2

Revenue is raised from our own charges, principally in the form of licence fees, and the flood defence levy on local authorities, which covers part of the cost of our Flood Defence function. The remainder is funded by Government grants. Our main sponsor in Government is the Department of the Environment, Transport and the Regions. The Agency also has links with the Ministry of Agriculture, Fisheries and Food (MAFF) and the National Assembly for Wales.

All our charges are reviewed annually and are assessed through consultation. Charge proposals are subject to approval by the Secretary of State. Regional Flood Defence Committees approve flood defence levies.

2.3. Priorities

A large proportion of the North Wessex Area budget is used to undertake work required of us by legislation and regulation, and by Agency 'national must-do's'. This includes committing substantial resources to everyday monitoring and management of the environment. Remaining resources are used to undertake other environmental works throughout the area on a priority basis, reviewed annually as part of our business planning process.

The issues identified in this plan have arisen despite our considerable statutory work and the work of other organisations. Some issues can be resolved by reprioritising and redirecting our resources within our statutory work programme, sometimes requiring the help and co-operation of other bodies.

Other issues require action over and above our statutory work and funding. Resources for this work are not certain and matched project funding is usually required in these cases.

Some issues require solutions beyond the scope of our existing budgets or technology. However, these are still valid issues and so are included in this plan in the hope that a solution may be found in the future.

Although the plan period is for five years, because of the short-term nature of our funding, we can often only firmly commit ourselves to actions in the current and next financial years. Our priorities, policies and budget may change, so changing our action programme.

The actions in this plan will be prioritised together with those from our other LEAP areas and other proposed actions, as part of our Annual Business Plan process. These changes will be reflected at each Annual Review, together with progress on completing the actions.

For a summary of our statutory duties, powers and interests please see the table in Appendix 12.1.

3. Climate Change

The climate has always changed, 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. Emissions of a range of gases, particularly carbon dioxide and methane, are adding to the greenhouse effect which contributes to global warming.

There are 3 climate change actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

- help to ensure that the Government's greenhouse gas emission reduction targets are met (Britain is committed to reducing emissions to 1990 levels);
- set an example by reducing our own energy and fossil fuel consumption;
- provide mapping of low-lying coastal areas at risk from sea level changes.

The Agency is responsible for authorising and regulating emissions to air from 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. Emissions to air of greenhouse gases from complex industrial process within the catchment remain minimal.

The decay of waste in landfill sites produces a mixture of gases known as landfill gas. Initially carbon dioxide is the main contributor to landfill gas, but as available oxygen is used up within the landfill, methane gas is produced. Methane is estimated to be 20-30 times more damaging than carbon dioxide, so conversion of methane to carbon dioxide, either in flares or as part of an energy recovery, is less damaging to the environment. The Agency regulates landfill sites by issuing, enforcing and reviewing waste management licenses, which can have conditions attached to ensure the appropriate management of landfill gas. Figure 4 identifies the licensed landfill sites within the catchment.

The site at Wheddon Cross was a local authority site, principally for the disposal of highways waste. It was authorised under Section 11 of the Control of Pollution Act 1974. The authorisation ceased to have effect with the introduction of the Environmental Protection Act 1990. Technically the site is no longer subject to waste management licensing processes.

Figure 4: Licensed landfill sites

Name	Location	Status	NGR	Comments
Wyvern Wastes Ltd	Williton	Active	ST096421	Active site with on-site flare stack in operation. The flare stack needs improvements by 2004 to meet Agency standards.
Somerset County Council	Wheddon Cross	Closed	SS921389	Closed site with insufficient gas to warrant flare or energy production.

The Agency has set targets to reduce our own energy and fossil fuel consumption, and have appointed a Regional Officer to co-ordinate our internal environmental management. We have so far achieved a 23% reduction in electricity consumption within the North Wessex Area. Although locally our mileage reduction targets have not been met, nationally business mileage is down 4.4% on last year. The reduction in Agency business mileage nationally in 1998/1999 has resulted in a reduction of 300 tonnes of carbon dioxide on 1996/1997 figures. We will continue to set targets to improve our own environmental performance using initiatives such as video conferencing to reduce business mileage; between April and December 1999 video conferencing saved in travelling time the equivalent of one person working for five years.

Because of global warming, sea levels will rise by an estimated 500mm world-wide in the next 100 years. The current rate for the Severn Estuary is an increase of about 2mm a year, and the predicted rise in sea level has to be taken into account when designing flood defence works. In addition to sea level rises, some scientists believe that global warming will result in more frequent and violent storms which can raise sea levels above predicted levels and generate increased wave action, causing overtopping and increased erosion of existing defences.

In response to predicted sea level rises we have already supplied West Somerset District Council with 'Section 105 maps', which identify low-lying coastal areas at risk from sea level changes. The standard used is a flood that has a statistical probability of occurring once in 200 years for coastal areas, and includes an allowance of 5mm per year (up to 2030) for sea level rise resulting from climate change.

Action 3.1	**Progress C**
Contribute to reducing Agency North Wessex Area business mileage by 5% and improve our overall fuel efficiency by 3 miles per gallon (mpg) on our 1996/1997 figures.	Mileage is about 5% over the target figure. Fuel efficiency has remained at the same level. We will continue to work to reduce business mileage and will be setting new targets for the coming year.
Cost: Saving	**Time scale:** 1998-1999
Action by: Agency	**Contact:** Business Services Manager

Action 3.2	**Progress C**
Contribute to reducing Agency electricity consumption in our North Wessex offices and depots by 20% compared to the Energy Efficiency Office typical or 1991/1992 consumption whichever is lower.	We have exceeded our target of 20% below Energy Efficient Office achieving a 23% reduction in electricity consumption. We will be setting new targets for the coming year.
Cost: Saving	**Time scale:** 1999
Action by: Agency	**Contact:** Business Services Manager

Action 3.3	**Progress C**
We will identify any landfills requiring new conditions to manage landfill gas as part of a review of licences.	The only active site already operates a flare stack for the conversion of methane. Improvements are required by 2004 to meet Agency standards.
Cost: £0.5k p.a.	**Time scale:** 1998
Action by: Agency	**Contact:** Team Leader Waste Licensing

4. Air Quality

The Government launched the National Air Quality Strategy in 1997. We have been working with local authorities to help achieve the strategy objectives, principally through our regulation of emissions from controlled (Part A) major industrial processes under Integrated Pollution Control (IPC) (see Section 11). Local authorities are responsible for the regulation of smaller, less complex (Part B) industrial processes, and for reducing traffic pollution.

Ambient concentrations of smoke and sulphur dioxide have generally declined in the United Kingdom as a whole over the last 20 years. 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 releases of some pollutants such as oxides of nitrogen, carbon monoxide and Volatile Organic Compounds (VOCs) have remained at similar levels, although their source may have changed. For example, releases of oxides of nitrogen from industrial sources have generally declined, whilst emissions from road traffic have increased.

With the exception of ground level ozone, ambient levels of these pollutants are generally lower in the south west than in many parts of England and Wales. However, planned development in the area will lead to an increase in vehicle movement, and therefore an increase in polluting discharges, especially oxides of nitrogen. We will use the Integrated Pollution Control authorisations to reduce emissions from St Regis Paper Mill and Hinkley Point Nuclear Power Station.

Aircraft are a further contributor to air pollution, though current research shows that aircraft make a negligible contribution when compared to domestic, transport and industrial sources of pollutants. However, as pollutants are mainly emitted at high altitude where they take longer to disperse, their contribution to global problems such as ozone depletion and the greenhouse effect may be more serious. Studies are currently being carried out around various airports to establish levels of pollution. While the Agency is not responsible for monitoring or regulating emissions from aircraft, we are concerned about their impact. We have no reason to believe that air pollution from aircraft is a major issue in this catchment.

There are 5 air quality actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

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

We will continue to work with local authorities, Government agencies and developers to help achieve the targets of the National Air Quality Strategy. This includes ensuring that developments make use of transport options producing the least pollutants, and that development is located where it will have the least detrimental effect on air quality. West Somerset District Council monitors air quality in the catchment, and the Agency is committed to reporting the results through the LEAP process (see Figure 5).

Air quality data

West Somerset District Council published their Review and Assessment of Air Quality earlier this year. The review was the first stage in identifying where further detailed surveys need to be targeted, and Stage II is currently underway. 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 monitoring results for Vulcan Road, Minehead were included in the West Somerset Rivers LEAP 1999. Figure 5 gives the results of an ambient air quality survey for nitrogen dioxide, ozone and carbon monoxide at the Yarn Market, Dunster, 1999.

Figure 5: Summary of West Somerset District Council Air Quality Monitoring Results – The Yarn Market, Dunster, 25 August to 3 September 1999

Parameter	NAQS Standard	Highest value	Lowest Value	Comments
Nitrogen Dioxide (NO^2)	150 ppb	16.0 ppb	<0.1 ppb	Concentrations throughout the monitoring period were classified as low in accordance with DETR classifications, with no exceedences.
Carbon Monoxide (CO)	10 ppm	0.9 ppm	<0.1 ppm	Concentrations throughout the monitoring period were classified as low in accordance with DETR classifications, with no exceedences. Small daily peaks were recorded at approximately the same time indicating a consistent pattern.
Ozone (O^3)	50 ppb	22.4 ppb	4.4 ppb	Concentrations throughout the monitoring period were classified as low in accordance with DETR classifications, with no exceedences. No daily pattern was discernible.

Key:

NAQS	National Air Quality Strategy
ppb	parts per billion
ppm	parts per million
DETR	Department of the Environment, Transport and the Regions

No significant concentrations of nitrogen dioxide or carbon monoxide were detected during the measuring period, and neither exceeded 10% of National Air Quality Strategy target standards. Those concentrations that did occur can be attributed to local traffic since peaks occurred daily, showed a consistent pattern and light winds failed to disperse pollutants.

There were no exceedences of the National Air Quality Strategy target standard of ozone during the monitoring period. The average ozone concentration was approximately 25% of the Strategy target standard. The lack of daily concentration peaks reflects the transboundary nature of the pollutant and the lack of locally generated ozone precursors (i.e. oxides of nitrogen). This monitoring was undertaken during a period which included the August Bank Holiday weekend. The early part of the monitoring period was rainy, but most of the period was dry, warm and sunny, and hence 'worst case' conditions for air pollution. Overall air pollution at the Yarn Market, Dunster, was low throughout the 1999 August Bank Holiday period. While there are currently no significant problems, a further measurement of nitrogen dioxide concentrations, together with measurements of particulate matter (PM_{10}) may be desirable if traffic congestion increases significantly.

Action 4.1	Progress C
Reduce business mileage - see Action 3.1 Climate Change.	Mileage is about 5% over the target figure. Fuel efficiency has remained at the same level. We will continue to work to reduce business mileage and will be setting new targets for the coming year.
Cost: Saving	**Time scale:** 1998-1999
Action by: Agency	**Contact:** Business Services Manager

Action 4.2	Progress S
Report the local authority air quality monitoring results in future LEAP Annual Reviews.	The most recent air quality monitoring results for West Somerset have been included in this report. We will continue to report these results on an annual basis.
Cost: Nil	**Time scale:** 1998-2002
Action by: Agency, West Somerset Council, Somerset County Council	**Contact:** Team Leader LEAPs

Action 4.3	Progress S
Use the Integrated Pollution Control process to reduce as far as possible emissions to air from St Regis Paper Mill and the Hinkley Point Nuclear Power Station.	The paper mill is considering replacing its use of heavy fuel oil as a standby fuel with low-sulphur oil. The Agency remains concerned about the environmental impact of the operation of the gas turbines at Hinkley Point Nuclear Power Station, and intends to address this problem within its prioritised plan for tackling regulatory issues at nuclear power stations in the North Wessex Area.
Cost: Unknown	**Time scale:** 1998-2002
Action by: Agency, St Regis Paper Mill Co, Hinkley Point A & B	**Contact:** Team Leader PIR/RSR

5. Water Resources

There is a constant need to balance the demand and supply of fresh water. The Agency has a duty under the Water Resources Act (1991) to take action to conserve, redistribute or otherwise augment water resources in England and Wales, and to secure the proper use of water resources.

There are 11 water resource actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the North Somerset Rivers catchment. We will:

- demand a more efficient use of water and reductions of leakage by the water companies and by industry in general;
- encourage a more efficient use of water by the public and a change in public attitude to water usage;
- demand reductions in leakage by the water companies before considering any cases for investment in new reservoirs (or other new sources);
- support the imposition of compulsory selective metering where water supplies are under stress and where meters are economically sensible to install;
- support the voluntary acceptance of water meters when accompanied by other water-saving incentives for the customer;
- vigorously apply our Policy and Practice for the Protection of Groundwater (PPPG) to ensure that the quality and use of the groundwaters is improved;
- examine water transfer schemes carefully to ensure that no environmental damage would result from their introduction;
- not approve the exploitation of new environmental resources until water-saving measures have been introduced;
- 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 (although no limitations to water supply apply in this area at the moment);
- ensure that all environmental needs are fully taken into account within the next Asset Management Plan (AMP) negotiations with the water companies (also, the Office of Water Services (OFWAT) and the Government).

The LEAP area lies within the Wessex Water area of supply. They supply water to the area using an integrated network of pipes and abstraction sources, known as 'Resource Zones'. Resource Zones extend over large areas; water supply within the LEAP catchment is therefore partially dependent on sources of water lying outside of this area. West Somerset is covered by Wessex Water's Northern Resource Zone.

Water supply and resource management are subject to national legislation and regulation. The Agency is responsible for determining and administering a system of impounding and abstraction licenses.

The Office of Water Services (OFWAT) is the body appointed by government as financial regulator of the water companies. They achieve this by carrying out periodic reviews, setting down the prices that water companies can charge their customers and how the money is to be spent. Expenditure on water company infrastructure serving the West Somerset area is dependent on this process.

The last periodic review of prices was published by the Office of Water Services at the end of November 1999, and covers the period 2000-2005, which took into account the Agency's proposals for the National Environmental Programme set out originally in May 1998 in *A Price Worth Paying*.

As part of their submissions to the Office of Water Services, water companies were required to revise their demand forecasts, review their resource availability and consider potential options to meet any deficits within the planning horizon to 2010. In parallel with the Periodic Review, the Agency required water companies to submit water resources plans for the period to 2025. These were received by the Agency in March 1999. The Agency considered Wessex Water's plan to be acceptable. Wessex Water is now to review and update their plans annually.

Changes to the water abstraction licensing system

Nearly everyone who needs to abstract water from rivers, canals, reservoirs, lakes or from groundwater sources requires a licence from the Environment Agency. There are about 48 000 licensed abstractions in England and Wales.

Since the present licensing system was introduced in 1965, demand for water has increased, environmental expectations have grown and commercial practices have changed. As a result, the Government reviewed the licensing system during 1997/1998, publishing its results *Taking Water Responsibly* in March 1999.

The changes proposed will fundamentally affect the way in which the Agency will control the abstraction, transfer and impoundment of water. This in turn will alter the way in which abstractors and other interested parties are involved in the control and management of water resources. During the development of our proposals we will consult with interested parties. Initially we are concentrating on the following areas, which do not require new primary legislation:

- Catchment Abstraction Management Strategies;
- time-limiting of licences;
- restoring sustainable abstraction by dealing with damaging abstractions;
- review of licence administration procedures.

Further information is available in the leaflet *Changes to the water abstraction licensing system*, available from our Bridgwater Office Customer Services Department.

Catchment Abstraction Management Strategies (CAMS)

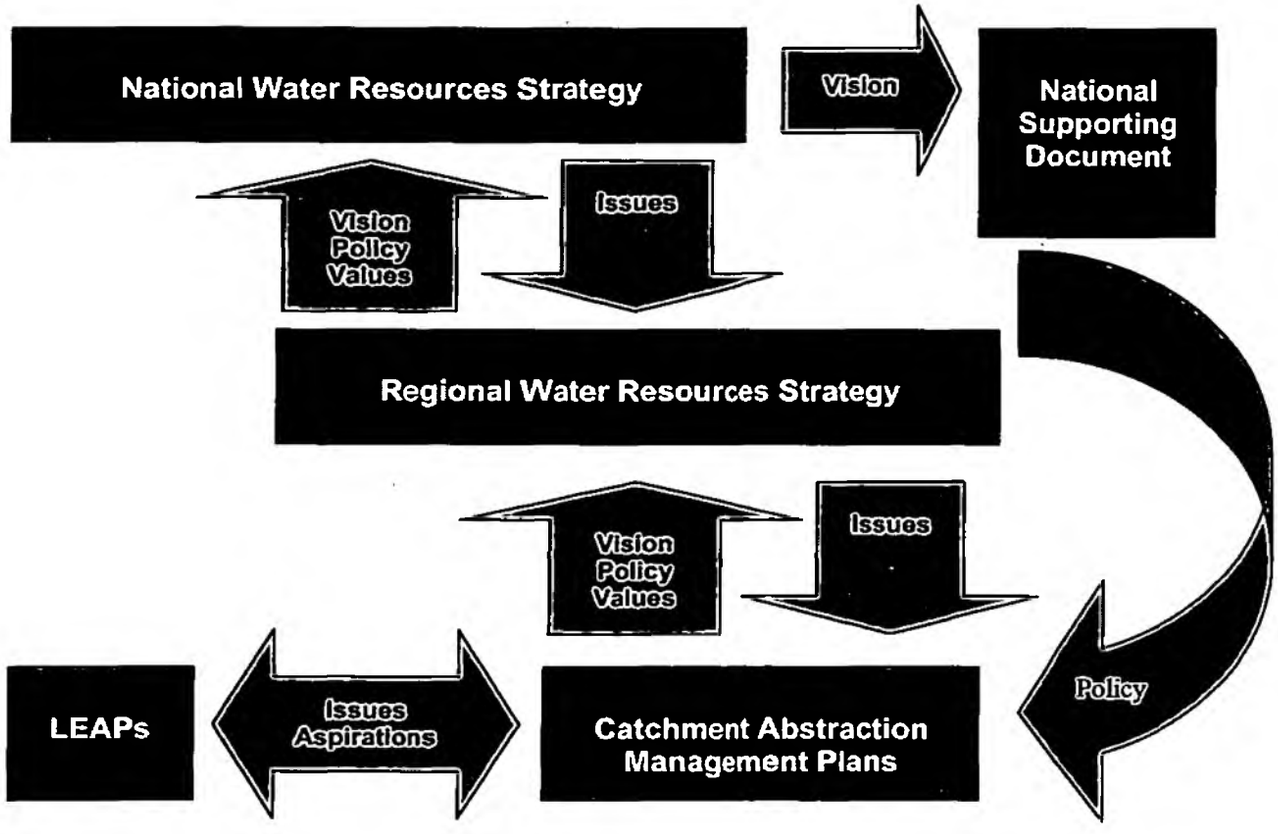
This major initiative will provide the opportunity, at a local catchment level, for groups and individuals to contribute to the development of the strategy to be adopted for the catchment. Catchment Abstraction Management Strategies will provide information on:

- the availability of water in a catchment;
- licensing practice in dealing with new applications;
- changes needed to the abstraction regime in the catchment to achieve the sustainable long-term use of water resources;
- a transparent basis for planning by abstractors, the Agency and all other interested parties.

It will also be the vehicle for reviewing existing time limited licenses. Our proposals for the production of Catchment Abstraction Management Strategies form a major part of a national consultation exercise from April 2000 to 31 July 2000.

Following the consultation we will publish a National Support Document in April 2001, and then start work on the first Catchment Abstraction Management Strategy. In North Wessex we hope to publish our first Catchment Abstraction Management Strategy in April 2002. These will be published one at a time on a six-year rolling cycle.

Figure 6: Links between Catchment Abstraction Management Strategies and other Agency documents



Action 5.1.1	Progress S
Revise the Regional Water Resources Strategies taking into account the most recent information and data that is available.	Water company plans were received and commented on in 1999. The consultation for National and Regional Water Resources Strategies took place from November 1999 to January 2000, and work is underway for the strategies to be published at the end of 2000.
Cost: £2.3k (plus input from Head Office staff and the National Water Demand Management Centre)	**Time scale:** 1998-2000
Action by: Agency, Wessex Water Services Ltd	**Contact:** Regional Senior Water Resources Planner

Action 5.1.2	Progress C
Disseminate information on demand management and water-saving measures in conjunction with the National Waste Survey.	This action has been completed, and information disseminated where appropriate. Additionally, water demand management and water efficiency information has been promoted and disseminated through a variety of other routes by Agency staff at area, region and national centres. This work will continue in the future. See Action 5.1.5.
Cost: £5k	**Time scale:** 1998
Action by: Agency, Wessex Water Services Ltd, Office of Water Services	**Contact:** Regional Senior Water Resources Planner

Action 5.1.3	Progress C
Reduce our North Wessex Area Office water consumption to 30% below the industry accepted target per office employee (this does not apply to depots).	Consumption is currently 30% below our internal target that is in turn 30% below the industry norm. We will be setting new targets for the coming year.
Cost: Saving	**Time scale:** 1998-2000
Action by: Agency	**Contact:** Business Services Manager

Action 5.1.4	Progress D
Work on demand scenarios within Local Authority Development and Structure Plans.	Planning Liaison have not been involved in further demand scenarios since the Somerset Structure Plan Environmental Impact Assessment.
Cost: £0.4k	**Time scale:** 1998-2000
Action by: Agency, Somerset County Council, West Somerset District Council	**Contact:** Team Leader Planning Liaison

Action 5.1.5	Progress N
Continue to disseminate water demand management and water efficiency information.	New Action (replaces 5.1.2)
Cost: £1k	**Time scale:** 1998
Action by: Agency	**Contact:** Regional Senior Water Resources Planner

6. Biodiversity

Biodiversity, defined as the variety of life on earth, is in decline. Member states of the European Union are producing Biodiversity Action Plans (BAPs) in an effort to halt the decline of species and habitats. The United Kingdom Biodiversity Action Plan lists priority habitats and species which require conservation action through Regional and Local Biodiversity Action Plans.

There are 11 biodiversity actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

- play a full part in implementing the European Community Habitats Directive;
- play a full and active part in delivering the United Kingdom Biodiversity Action Plan by acting as the contact point for 4 habitats including chalk rivers and for over 40 species of aquatic animals and plants, including otter, water vole and rare species of fish, and by acting as the lead partner either singly or in collaboration with others for 10 of them;
- ensure that all aspects of Biodiversity Action Plans are incorporated into the Agency's guidance and become part of its Local Environment Agency Plans;
- implement a series of regional projects, in partnership with local conservation groups, to deliver biodiversity targets at specific sites;
- allocate specific resources to conservation projects aimed at increasing biodiversity;
- control eutrophication, where practicable, in order to enhance biodiversity;
- improve the management of wetlands for conservation purposes;
- use and promote the best environmental practice for the protection and restoration of river habitats;
- develop and set conservation criteria for all of the Agency's environmental licensing activities;
- implement specific projects to restore habitats in rivers and lakes, increase the area of reedbed and other water plants, and improve river banks;
- 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.

Biodiversity Action Plans

We continue to work with a number of organisations to formulate and implement habitat and species action plans at both regional and local levels. The Biodiversity Action Plan for West Somerset District was completed in 1999. Exmoor National Park and the Quantock Hills are covered in separate plans. The Agency is developing National Species Action Plans and is the contact point for otter and water vole, which are both known to occur in the catchment, as do native crayfish and river lamprey.

Exmoor National Park Authority has recently published a Draft Management Plan for 2000-2005. The National Park area includes parts of 5 LEAP catchments, and the National Park Authority has stated their intention of working with the Agency and other organisations to implement and review LEAP actions affecting the National Park. Targets set in their Draft Management Plan include:

- Remove all Himalayan balsam and Japanese knotweed from Exmoor Rivers by 2005.
- Prepare and begin to implement 5 Biodiversity Action Plans for species and habitats found in Exmoor rivers or wetlands by 2005.
- Set up a monitoring system for otter populations.
- Set up a monitoring system for Exmoor main river systems.

Otters have been recorded as using a number of watercourses within the catchment. All of the major rivers and streams provide suitable habitat for otters to hunt and breed. We have made progress in the provision of otter passes within the catchment, and continue to collect road casualties, which together with survey data, indicates a good otter population in the West Somerset Rivers area.

Mink have also been identified as an issue within the catchment. Some people perceive mink to be a serious threat to biodiversity while others take the view that mink have found a vacant niche and are settling down to reach a balance with their prey. The Agency is not responsible for the control of mink; this falls to the riparian owner. We have produced a leaflet on how to control mink, which is available from our offices (*Mink – ST-12/95-40*).

The sea breach at Porlock Marsh in 1996 has resulted in a more saline influence on the habitat, which is changing from grazing marsh to saltmarsh. We are continuing to monitor the changes.

Invasive Species

The presence of invasive species within the catchment remains an issue, especially regarding Japanese knotweed. Normally we do not control invasive plant growth unless it becomes an obstruction to flood flow, the control of invasive plants in the river channel primarily being the responsibility of riparian owners. However, while the removal of invasive species is not a flood defence priority, flood defence staff have made considerable progress in controlling Japanese knotweed on the Hawkcombe Stream as part of maintenance works. The Agency has produced an advisory leaflet *Guidance for the Control of Invasive Species near Watercourses*, which is available to riparian owners, and anyone else with an interest in the control of invasive species.

EC Habitats Directive

The European Community Birds Directive and the Habitats and Species Directive Regulations (1994) place additional responsibilities on all competent authorities, including the Agency. The aim of the legislation is to protect and conserve certain species and habitats that are threatened in a European context.

The first stage of implementing the regulations is through the establishment of a network of nature conservation sites that will be known as the Natura 2000 Network. Natura 2000 sites are Special Protection Areas (SPAs) which are designated under the Birds Directive, and Special Areas of Conservation (SACs) which are designated under the Habitats Directive. It is Government policy that RAMSAR wetland sites (sites identified under the Convention on Wetlands of International Importance, which was ratified by the United Kingdom Government in 1976) will also be considered under the Habitats Regulations.

The Natura 2000 sites within the catchment are Exmoor Heaths and part of Bridgwater Bay, which forms part of the Severn Estuary Special Protection Area/RAMSAR/possible Special Area of Conservation. The Severn Estuary is also a consideration, as the rivers within the catchment drain into the estuary and may therefore impact on the site.

Any proposals or applications for new authorisations that may have a significant effect on the conservation interests of a Natura 2000 site will be subject to an appropriate assessment of its impact on the interests of the site. The assessment must take place in the light of the conservation objectives for the site, which will be supplied by English Nature by the end of March 2001. The authorisations or activities can only be granted where the assessment has demonstrated that it will not adversely affect the integrity of the site.

Further to this requirement, we are obliged to review all existing authorisations (e.g. consents to discharge, abstraction licences, waste licences) and activities (e.g. land drainage or flood defence work) which may be affecting the sites, taking the advice of English Nature into account. These authorisations can be either inside or outside the site, as those outside of the boundary may still have the potential to impact on sites inside the boundary.

Stage II of our review is currently underway using a methodology agreed with English Nature to determine which authorisations are likely to be adversely affecting these sites. The project is insufficiently developed at present to estimate either the number or complexity of the reviews to be carried out, and we are therefore unable to provide likely costs at present.

Action 6.1	Progress S
Porlock Marsh: monitor change of habitat from grazing marsh and reedbed to saltmarsh / saline lagoon.	Monitoring of landform change, vegetation development and bird populations is continuing. The saltmarsh is developing and the changes are providing useful information to experts in the field of coastal geomorphology.
Cost: £2k p.a.	**Time scale:** 1998-2000
Action by: Agency, English Nature	**Contact:** Team Leader Conservation

Action 6.2	Progress D
Headwater streams: survey to assess value and develop conservation strategy.	No progress to date.
Cost: £1.5k	**Time scale:** 1999
Action by: Agency	**Contact:** Team Leader Conservation

Action 6.3	**Progress S**
Water voles: liaise with Somerset Environmental Records Centre 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.	This action is underway in partnership with Somerset Environmental Records Centre. To date, a survey methodology has been agreed and the verification of existing records is taking place.
Cost: £5k	**Time scale:** 1999-2000
Action by: Agency, Somerset Environmental Records Centre	**Contact:** Team Leader Conservation

Action 6.4	**Progress S**
Otters: liaise with Somerset Otter Group regarding survey, and habitat enhancements required depending on the results of the survey.	Liaison with Somerset Otter Group has been ongoing, and some minor remedial work to the River Avill otter underpass at Loxhole has been carried out. At Billbrook an application for Land Drainage consent by WS Atkins has led to the opportunity of constructing an otter / mammal pass where the A39 crosses the Pill River. This is now under construction. Sluice modifications have also improved otter passage near Mamsey Bridge. We will continue to seek opportunities to provide otter / mammal passes in the Williton area, where the number of otter fatalities on roads is particularly high.
Cost: £5k	**Time scale:** 1999-2002
Action by: Agency, Somerset Otter Group	**Contact:** Team Leader Conservation

Action 6.5	**Progress S**
Otters: collect carcasses of otter road casualties and send for tissue analysis.	We continue to collect otter corpses from within the catchment. The corpses are sent to a veterinary investigation centre for a post mortem, the results of which are passed on to the Agency and the Somerset Otter Group. Together with reports of otter signs from survey, the data from road casualties indicates that the species has a strong presence in West Somerset.
Cost: £1k p.a.	**Time scale:** 1998-2000
Action by: Agency	**Contact:** Team Leader Conservation

Action 6.6	**Progress D**
Black poplar: liaise with Somerset Wildlife Trust to investigate genetics of trees present and formulate action plan.	No action as yet.
Cost: £5k	**Time scale:** 1999
Action by: Agency, Wildlife Trust	**Contact:** Team Leader Conservation

Action 6.7	Progress C
Native crayfish: collate data on status and distribution of native crayfish and river lamprey and protect known habitats.	Lamprey information was collected as part of our routine fish survey programme on the Doniford River in 1999. We will continue to protect crayfish populations where they are known to occur, although no new sites have as yet come to light in the catchment.
Cost: £5k	**Time scale:** 1999-2001
Action by: Agency	**Contact:** Team Leader Fisheries

Action 6.8	Progress S
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.	Continued work by flood defence staff has made real progress on the Japanese knotweed population on the Hawkcombe stream, although it remains a problem in other parts of the catchment. We will continue to advise riparian owners on the control and disposal of this species.
Cost: £13k (£3k in 1998, £10k in 1999)	**Time scale:** 1998-1999
Action by: Agency, Riparian owners	**Contact:** Team Leader Conservation

Action 6.9	Progress N
Habitats Directive: Review current and new abstraction licences in relation to Natura 2000 sites in the catchment.	New action.
Cost: Unknown	**Time scale:** 2000-2002
Action by: Agency	**Contact:** Team Leader Abstraction licensing

Action 6.10	Progress N
Habitats Directive: Review current and new consents to discharge in relation to Natura 2000 sites in the catchment.	New action.
Cost: Unknown	**Time scale:** 2000-2002
Action by: Agency	**Contact:** Team Leader Discharge Consents

Action 6.11	Progress N
Habitats Directive: Review impact of operational activities in relation to Natura 2000 sites in the catchment.	New action.
Cost: Unknown	**Time scale:** 2000-2002
Action by: Agency	**Contact:** Team Leader Flood Defence Operations

7. Fisheries

The Agency has a specific duty to assess the state of, and safeguard, freshwater fisheries and the waters they inhabit. In 1978 the European Community Freshwater Fish Directive was adopted which set water quality objectives for designated stretches of water, enabling fish to live and breed in favourable conditions.

There are five fisheries actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

- monitor every river fishery over a 5 year rolling cycle;
- restore spawning grounds for freshwater fish;
- implement a programme of minimum acceptable flow for rivers (this is the river flow below which unacceptable damage to plants and animals occurs, or detriment to downstream users);
- develop specific longer-term strategies for salmon, trout and coarse fisheries;
- reduce poaching to a minimum and bring rod licence evasion to less than 10%.

Of wide interest within fisheries, there has recently been a fisheries legislative review carried out by a group of experts selected by Parliament. They recently reported their findings on a wide range of issues, making over a hundred recommendations. There now follows a public consultation period. This independent review group took evidence from many parties including the Agency on many aspects of fisheries management and regulation.

Following the production of national management strategies for coarse fish and salmon, the Agency is now launching a strategy for the management of eel stocks in England and Wales. We have produced a Draft National Eel Management Strategy that has gone out to consultation until 31 July 2000.

European eel stocks are considered to be under threat, and the strategy has been produced with reference to the international status of the eel. Our aim for all fisheries, including eels, is to allow the sustainable exploitation of fish stocks by both commercial and recreational fishermen. The eel strategy emphasises this aim, and describes an action plan, including measures of success, to achieve this aim.

A national review of eel licensing and bylaws is also going to take place, and consultation is planned for later in the year.

In 1999 consultation took place on our Coarse Fish Strategy which informs anglers and the public of how the Environment Agency intends to deliver better coarse fisheries in the future. This strategy complements the existing general fisheries strategy that is called An Action Plan for Fisheries. These developments are of relevance right across the North Wessex Area though the fisheries of West Somerset are particularly trout dominated.

More locally, the fish populations of the Doniford River were surveyed in 1999 within our current five-year rolling programme. Populations of fish were generally good including brown trout (including sea trout), lampreys, eels and bullheads.

Habitat improvement work has been carried out on a section of the River Avill near Timberscombe that enhances a section of the tributary used as a spawning and nursery area for the native brown trout. The fish passes that exist on the River Avill and Washford River are regularly cleared in the autumn months to maintain migratory access through the river for resident brown trout and the migratory 'sea trout'.

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 within the catchment: the Doniford Stream, the Washford river and the River Avill. Adults typically enter the rivers late in the year to spawn in the lower reaches, and there is a need to protect spawning gravels from siltation. Where new river works may 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.

Action 7.1	**Progress S**
Sea trout: ensure that the migration of sea trout is not obstructed and that spawning areas are protected.	This action is being carried out through day to day planning consultation work and the autumn maintenance and clearing of existing fish passes. Liaison with St Regis Paper Mill appears to have satisfactorily resolved the flow and obstruction issue at Kentsford Farm. This action is also linked to soil erosion problems, most notably on the Doniford Stream (see Section 9.5).
Cost: Unknown	**Time scale:** 1998-2002
Action by: Agency, Riparian owners	**Contact:** Team Leader Fisheries

Action 7.2	**Progress S**
Implement Barriers to Migration survey (eels and elvers), subject to funding.	We are aware of potential migration barriers that exist on rivers within the area of this LEAP catchment. As elsewhere in North Wessex, their significance to eel populations in the localities is less well understood. This action is recognised within the Eel Strategy (see above text). We will aim for eel friendly designs for new structures and consider cost effective solutions at existing structures, although no structures in this LEAP catchment have been identified as yet for modification. Experimentation with elver passes is being trialed at some locations within North Wessex to investigate cost effective techniques.
Cost: Unknown	**Time scale:** 2000-2004
Action by: Agency	**Contact:** Team Leader Fisheries

8. Integrated River Basin Management

Integrated river basin management is a way of looking at a river and the surrounding land as a whole. It looks at water quality and quantity, landscape, recreation use, flood control works and wildlife supported by the river and its environs.

There are 12 integrated river basin management actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

- manage river basins in an integrated way, via Local Environment Agency Plans;
- ensure that all waters are of sustainable quality for their different uses;
- deliver a continual improvement in overall water quality;
- provide effective flood defence;
- provide an effective flood warning system;
- increase the number of rivers and still waters capable of supporting viable fisheries;
- improve river habitat quality as measured by river habitat surveys;
- improve wetland management;
- improve riverside landscapes;
- improve bathing water quality;
- increase the number of Agency-owned sites available for public recreation;
- 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

The Agency has powers under the Land Drainage Act (1991) to maintain significant watercourses, designated as 'main river' under the Act. We are also responsible for a large number of water level management control structures, and have an overall responsibility for flood defence matters. We use Standards of Service land-use bands to determine levels of flood protection (see Appendix 12.4). We are also responsible for warning the public and other organisations of likely flooding events.

Flooding in West Somerset is a particular problem. The short, steep rivers are fed by a number of tributaries, and the rivers respond rapidly to rainfall, making flood forecasting difficult, particularly in the Doniford Stream. Detailed indicative floodplain maps (Section 105 maps) have been supplied to the local planning authority, which will aid the identification of current flood problems and properties at risk.

Action 8.1.1	Progress S
Assess current flood warning levels of service.	The final Flood Warning Levels of Service for West Somerset were produced in March of this year. We now have to consider the findings and develop a strategy for improvements. This is likely to take at least 12 months.
Cost: £8k	**Time scale:** 1999-2002
Action by: Agency	**Contact:** Team Leader Flood Defence Operations

Action 8.1.2	Progress C
Contribute to any Major Incident Plans that are being produced by West Somerset District Council.	The only Major Incident Plan for flooding in West Somerset is in relation to Minehead. There are currently no plans for any Major Incident Plans relating to rivers in the catchment, as any flooding event is likely to be within the resource capacity of the emergency services or Local Authorities.
Cost: £3.5k	**Time scale:** 1998-1999
Action by: Agency, West Somerset District Council	**Contact:** Team Leader Flood Defence Operations

8.2. Water Quality

We continue to manage surface water quality by setting targets called River Quality Objectives (RQOs), used as a basis for setting consents for new discharges and planning future water quality improvements.

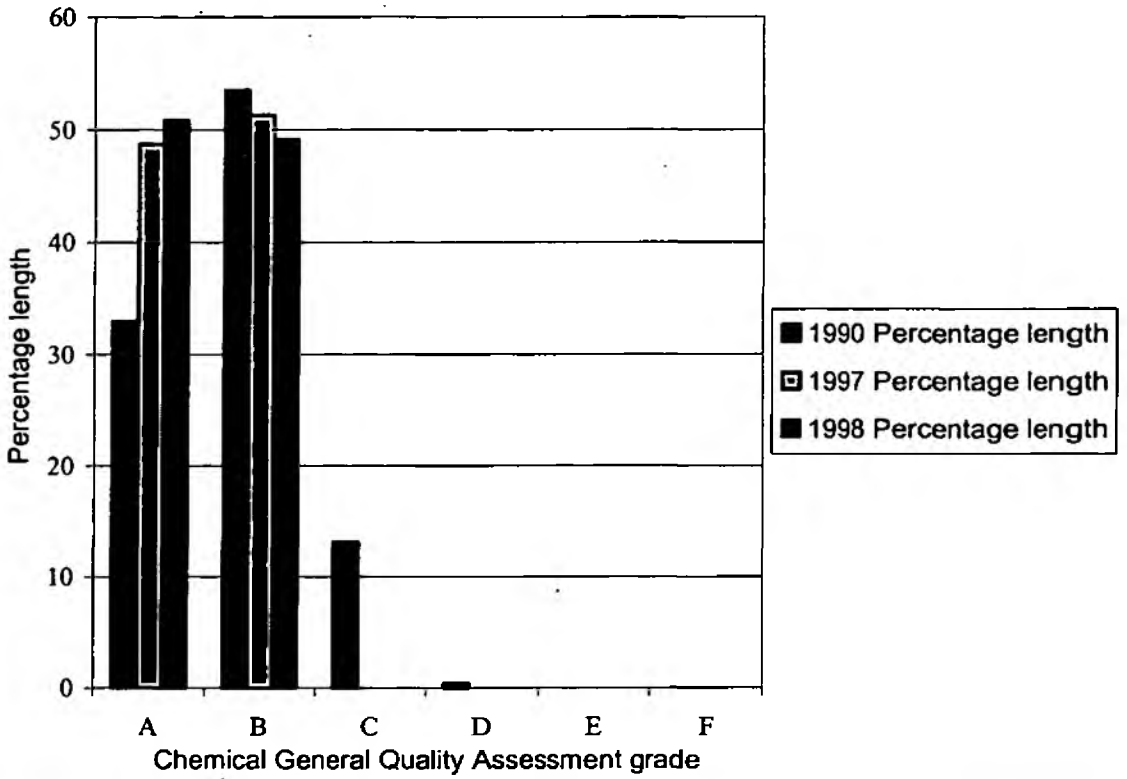
River Quality Objectives are proposed using a classification scheme known as River Ecosystem (RE). The Chemical General Quality Assessment (GQA) scheme is used to report at a general level on river quality, and to show trends.

We monitor nearly 95 km of rivers in the West Somerset Catchment. Chemical quality is monitored annually (see below) and biological quality is monitored every five years. The biological quality survey is being carried out this year over two seasons (spring and autumn). We will report on the results of the survey in the next annual review.

Figure 7 shows the percentage length of watercourse in the West Somerset LEAP catchment by Chemical General Quality Assessment Grade for 1990, 1997 and 1998.

Since 1990, there has been great improvement in water quality with the percentage in grades A and B increasing from 86.5% to 100%. Of the 20 stretches that were monitored in 1998, only three were marginal failures, and only one, the Washford River, had a significant fail, though the data for 1999 shows that it is now compliant (see Appendix 12.5). The General Quality Assessment criteria and River Ecosystem classification are given in Appendices 12.2 and 12.3.

Figure 7: Percentage length of watercourse by chemical General Quality Assessment Grade



Action 8.2.1	Progress ©
Investigate the cause of the significant River Quality Objective (RQO) failure on the Washford River - Roadwater to Watchet.	Recent monitoring data indicates that this stretch is now compliant with its River Quality Objective. There are no plans to investigate this issue in 2000.
Cost: £0.5k	**Time scale:** 1999
Action by: Agency	**Contact:** Team Leader Environment Protection West Somerset & Tone

Action 8.2.2	Progress ©
Investigate the cause of the marginal River Quality Objective failure on the River Aller - source to sea.	1999 data indicates that this stretch is now compliant with its River Quality Objective. There are no plans to investigate this issue in 2000.
Cost: £0.5k	**Time scale:** 1999
Action by: Agency	**Contact:** Team Leader Environment Protection West Somerset & Tone

8.3. Horner Water – bed loss

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, which takes water from the river gravels.

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

Action 8.3.1	**Progress D**
Review the analysis of Bossington Well test pumping.	The Bossington Well test pumping was carried out in 1976 when the abstraction licence was issued to Wessex Water. The review of Bossington Well test pumping is not possible due to inadequate records.
Cost: £0.5k	**Time scale:** 1999
Action by: Agency	**Contact:** Team Leader Area Water Resources

Action 8.3.2	**Progress S**
Investigate the relative impacts of the natural bed losses and of the Wessex Water abstraction at Bossington on flows in the Horner Water.	Bossington Well has been included in a list of low flow issues for which investigations are to be completed by 2005.
Cost: Unknown	**Time scale:** 2000-2005
Action by: Agency	**Contact:** Team Leader Area Water Resources

8.4. The impact of agricultural discharges and runoff

Two stretches on the River Pill failed to meet their long-term River Quality Objectives in 1996 because of polluting farm discharges.

Organic waste in rivers can cause a depletion of dissolved oxygen, leading to a reduction in the variety of life that can be supported. Both stretches have been compliant since 1997, but concerns regarding non-compliance remain. Farm waste in rivers can deplete local dissolved oxygen levels, and contribute bacteria to coastal waters where rivers feed into coastal waters. Silt runoff is also harmful to wildlife in rivers and streams. To this end, a farm scheme has been completed at Binham Farm, which will safeguard the river quality objective against point source pollution, and we are currently working to resolve the issue of diffuse pollution.

A pollution problem also occurred at Lower Marsh Farm, resulting from the spreading of slurry to land that ran off into the watercourse, affecting a downstream lake at Dunster. In addition to affecting the quality of watercourses, slurry spreading can impact on bathing water quality. We are planning to meet with all involved parties to agree a more careful approach to spreading in the future. A new Diffuse Pollution Officer has been appointed to develop an area strategy.

Action 8.4.1	Progress S
Monitor the implementation of farm schemes on the River Pill – source to Chapel Cleeve and Chapel Cleeve to sea.	A farm scheme costing £180k has recently been completed by the farmer at Binham Farm. We anticipate that this will safeguard the River Quality Objective against point source pollution problems. However, the problem of diffuse pollution remains and we are continuing discussions with the Crown Estate.
Cost: £2k	**Time scale:** 1998-2000
Action by: Agency	**Contact:** Team Leader Environment Protection West Somerset & Tone

8.5. Impact of septic tanks

There is some concern regarding the risk of contamination of private water supplies in close proximity to septic tank discharges. Septic tank effluent may have contributed to one stretch of the River Pill (source to Chapel Cleeve) marginally failing to meet its Long Term River Quality Objective in 1996 (see Action 8.4.1). While the stretch met its target in 1997 and 1998, the threat of non-compliance remains, and so we will continue to monitor the site.

Action 8.5.1	Progress S
Investigate septic tank inputs to the River Pill.	A survey of the direct septic tank inputs from Billbrook is planned for Summer 2000. Initial monitoring has highlighted occasional elevated coliform levels.
Cost: £1k	**Time scale:** 1999-2000
Action by: Agency	**Contact:** Team Leader Environment Protection West Somerset & Tone

8.6. The impact of polluting discharges on bathing water quality

The European Community Bathing Water Directive sets quality standards for bathing waters, requiring that each country designate their most popular bathing waters for testing. The Agency is required to sample and analyse bathing waters in accordance with the requirements of the Directive. The results are reported annually to the Department of the Environment, Transport and the Regions and the National Assembly for Wales (NAW), who then assess compliance of individual bathing waters and transmit the results to the European Commission.

The Directive sets quality standards for a number of substances, the most important being the coliform group of bacteria. The mandatory coliform standards which are used to assess compliance require there to be no more than 10 000 total coliforms per 100ml and no more than 2000 faecal coliforms per 100ml. In order for bathing waters to comply, 95% of samples taken from each site during the bathing season (15 May to 30 September) must meet these standards.

The Directive also gives more stringent guidelines requiring that 80% of samples must not contain more than 500 total coliforms or 100 faecal coliforms per 100ml, and 90% of samples must not contain more than 100 faecal streptococci bacteria per 100ml. The survey results for West Somerset are shown in Figure 8.

The Tidy Britain Group, on behalf of the Foundation for Environmental Education in Europe, administers European Blue Flag awards in the United Kingdom. Beach operators must apply to the Tidy Britain Group for a Blue Flag award, and compliance with the more stringent Directive guidelines is only one of a number of criteria that are taken into account.

The Agency also regulates discharges to controlled waters with respect to water quality objectives. The European Community Urban Waste Water Treatment Directive (UWWTD) specifies minimum standards for levels of sewage treatment and collection systems. The Directive specifies secondary treatment for all discharges serving population equivalents greater than 2000 to inland waters and estuaries, and those greater than 10 000 to coastal waters. Discharges below these population equivalents receive appropriate treatment through Asset Management Plans. The Agency is responsible for ensuring that discharges receive the level of treatment specified.

Figure 8: Bathing Water survey results 1997-1999 (mandatory standards)

Bathing Water	1997	1998	1999
Porlock Weir	Pass	Pass	Pass
Minehead Terminus	Pass	Fail	Pass
Dunster North West	Pass	Pass	Pass
Blue Anchor West	Pass	Fail	Fail

Minehead Terminus passed the mandatory coliform standards in 1999 after failing in the previous year. Blue Anchor West again failed the mandatory standards due to exceedences in total and faecal coliforms. The specific cause of the exceedences is unclear but crude discharges at Doniford and Watchet, and high runoff due to heavy rain in the week preceding sampling are thought to have contributed to high background bacteria levels. Riverine inputs into the bathing water are being investigated and a tracing study has been completed (see Action 8.6.2). Improvements during Asset Management Plan 3 are planned for Watchet and Doniford Sewage Treatment Works by the end of 2002 and 2003 respectively.

None of the bathing waters in the catchment met the more stringent Directive guidelines, and therefore do not qualify for a Blue Flag award.

Beach debris

Concern has been expressed over the amount of litter and other debris occurring on local beaches. The Agency has been working over the last few years on the development of different schemes for assessing the aesthetic quality of the environment. The importance of aesthetic quality has also been recognised in the Agency's Environmental Strategy.

Aesthetic quality was identified as one of the six 'Viewpoints on the Environment'; the Agency's environmental monitoring and assessment framework. Aesthetic quality was again identified as a key area for development in the Agency's strategic review of environmental information needs and monitoring programmes, published in February 1999 as *Monitoring For What?* Two key recommendations relating to aesthetic quality assessments are that the Agency will work to:

- develop new approaches for assessing the aesthetic quality of the environment;
- look at potential opportunities to involve volunteers in our monitoring and assessment programmes.

In addition the assessment of aesthetic quality is identified in the review as one of the 'Key Indicators of Environmental Change' that the Agency should develop and report on in the future.

The Agency has so far developed an aesthetics component of the General Quality Assessment scheme for rivers and canals, and is conducting research into alternative approaches to assessing the aesthetic quality of the environment. This concentrates on the public's perception of the environment in which they live. However, the major recent initiative in this area is the work on the aesthetic quality of the coastal environment that has been done in collaboration with the National Aquatic Litter Group (NALG).

The major product from the collaboration so far has been the development of a standardised monitoring and assessment protocol for the aesthetic assessment of coastal and bathing beaches. The final protocol is based on a standard sampling unit at a fixed point and covers assessments of sewage related debris, gross and general litter, potentially harmful litter, presence of oil pollution, dog faeces and accumulations of litter. A four grade classification scheme is used from A (very good) to D (poor).

As part of the implementation plans drawn up to take forward the recommendations from the Monitoring Review, a proposal was put forward to conduct a single survey at all European Community Designated Bathing Beaches during a one month period in the summer of this year. This will take place as part of the Year 2000 General Quality Assessment Survey during July. The data from this survey will be pooled with those from other partners in the National Aquatic Litter Group who undertake their own surveys, using the agreed monitoring and assessment protocol. The long term aim is to work together to maximise the amount of information, create a national database and develop strategies for the remediation of the beach litter problem.

Action 8.6.1	Progress S
Undertake a sampling programme of all river inputs and storm overflows along the coastline.	Riverine inputs on the West Somerset coast are routinely sampled as required by the Bathing Waters Directive. During 1999 additional sites were added to the routine programme including several storm overflows.
Cost: £3k	**Time scale:** 1998-2002
Action by: Agency	**Contact:** Team Leader Monitoring

Action 8.6.2	Progress S
Undertake a series of effluent tracing studies of discharges from Minehead, Watchet and Doniford sewage outfalls.	The effluent tracer studies at Watchet and Doniford outfalls were completed over the 1998/1999 financial years as planned. A report combining the results of both studies will be completed by the end of March. The tracing study at Minehead has been put back to 2000 as Wessex Water was undertaking improvement work at the Sewage Treatment Works last year. Now that their work is complete our study will proceed in the summer.
Cost: £12 000 (Watchet and Doniford outfalls), £5000 (Minehead)	**Time scale:** 1998-2000
Action by: Agency	**Contact:** Team Leader Investigations

Action 8.6.3	Progress S
Investigate the possible polluting coliform inputs into the Duckpool Rhyne.	Bacteriological surveys of the Duckpool and Somerwest Rhynes led to further investigations by Butlins Family Entertainment and has confirmed the presence of sewage in the surface water system. Three significant sources have been identified and removed and further work is planned for 2000.
Cost: £3k	**Time scale:** 1998-2000
Action by: Agency	**Contact:** Team Leader Environment Protection West Somerset & Tone

Action 8.6.4	Progress S
Continue the discussions with Wessex Water and St Regis Paper Mill concerning the implementation by 2000 of the Urban Waste Water Treatment Directive to the Watchet/Doniford effluent disposal system.	Phase 1 of this scheme involves the installation of primary tanks and use of the new outfall by the end of 2000. Phase 2 involving the connection of the flow from Doniford and secondary treatment is planned for completion in 2003.
Cost: £20k (£5k in 1998, £15k in 1999)	**Time scale:** 1998-2003
Action by: Agency, Wessex Water Services Ltd, St Regis Paper Mill	**Contact:** Team Leader Environment Protection West Somerset & Tone

8.7. The recreational use of land and water

We have a duty to develop the recreational potential of land we own, and promote a balance between different water-related recreational activities and help to promote or develop access where appropriate. We have very few land holdings within the catchment. The land we own within Bridgwater Bay is managed by English Nature as part of the National Nature Reserve (NNR). We have looked at the possibility of developing a circular walk on Agency land along the River Avill, but consider the site unsafe for recreational purposes. However, where possible we will continue to look for opportunities to promote recreation in partnership with others.

Action 8.7.1	Progress S
Investigate the amount of information available to visitors and produce a joint information leaflet.	This investigation is now underway.
Cost: £5k	**Time scale:** 1999-2002
Action by: Agency, English Nature	**Contact:** Team Leader Conservation

Action 8.7.2	Progress C
Investigate the possibility of a circular walk using the River Avill Flood Alleviation Channel as a link.	We have completed a feasibility study, which concluded that the site is unsuitable for a circular walk due to safety considerations.
Cost: £1k	**Time scale:** 1999
Action by: Agency, West Somerset District Council	**Contact:** Team Leader Conservation

Action 8.7.3	Progress C
Review coastal areas to assess the possibility of creating new paths.	There are few opportunities for the Agency to create new paths due to our limited land holdings in the area. We will continue to seek opportunities to work in partnership with others as part of our duty to promote recreation.
Cost: £2k	**Time scale:** 1999
Action by: Agency	**Contact:** Team Leader Conservation

8.8. The impact of sheep dip (new issue)

Within the catchment, sheep farming occurs extensively on the Brendon Hills and Exmoor. Dipping of sheep was compulsory until 1992, and sheep are still dipped for a number of economic and welfare reasons. In the past decade, the most efficient sheep dip formulations were the organophosphate dips. In recent years many farmers have switched to using synthetic pyrethroid based dips, reflecting concerns with the possible health implications for farmers of organophosphate dips. The organophosphate dips may be licensed again, but not before spring 2001 at the earliest.

Synthetic pyrethroid dips are safer to humans but are 100 times more toxic to aquatic life than organophosphates. Tiny inputs of synthetic pyrethroids can result in major losses of aquatic life in rivers. They can also pollute groundwater, affecting both public and private water supplies. We are now asking all those involved in sheep dipping to take the utmost care in using synthetic pyrethroid sheep dips, and follow a few simple measures:

- Ensure dip baths are in good condition and drain pens run back into it.
- Avoid seepage from drains in dip baths even if they have bungs; minor seepage around bungs can be devastating.
- Avoid using mobile units around farmyards where there is a danger of spillage or drainage getting into surface water drains or ditches.

- Chemicals are likely to wash off if freshly dipped sheep walk through a stream or wetland. Drainage from a single sheep can cause severe pollution if it is washed off into a stream.

- Make sure disposal of used dip is carefully undertaken in accordance with Groundwater Regulation authorisation from the Agency; if you do not yet have an authorisation immediately ask your local Agency office for an application pack.

Using the findings of a national research and development and policy advice from our national experts, we will develop a regional strategy to deal effectively with the problems of sheep dips and their disposal.

Action 8.8.1	**Progress N**
Review data from Wessex Water Services Ltd on the occurrence of sheep dip in raw waters for potable supply.	New action.
Cost: £1k	**Time scale:** 2000
Action by: Agency	**Contact:** Team Leader Environmental Protection

Action 8.8.2	**Progress N**
Develop a regional strategy for the authorisation of sheep dip disposal.	New action.
Cost: £3k	**Time scale:** 2000
Action by: Agency	**Contact:** Team Leader Environmental Protection

Action 8.8.3	**Progress N**
Implement the recommendations of the Regional Strategy.	New action.
Cost: £3k	**Time scale:** 2000-2002
Action by: Agency	**Contact:** Team Leader Environmental Protection

9. Conserving the Land

The Agency is committed to protecting the land from pollution and erosion and also to minimising the risk to people and property from flooding.

There are 10 actions to conserve the land set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

- influence the Town and Country Planning system to prevent developments in the wrong places;
- implement the Flood and Coastal Defence policy as advised by the Ministry of Agriculture, Fisheries and Food and the Welsh Office;
- provide floodplain surveys to local planning authorities;
- discourage development in floodplains;
- work with nature to reduce coastal flooding;
- report regularly on the state of flood defences;
- identify the state and extent of the problem of soil erosion;
- work with local authorities to identify, and report on the extent of, contaminated land;
- regulate identified 'special' contaminated land sites effectively;
- identify the needs of, and alleviate the effects of, soil acidification in upland areas.

9.1. Flood defence and development

We review and comment on all planning applications, which have flooding, and other environmental implications. We are concerned that in the past planning authorities have permitted developments where they will suffer flooding and/or exacerbate existing flooding problems. We therefore use our influence as a statutory consultee so that planning authorities are able to steer development away from areas where flooding problems may occur. This is in accordance with our published Policy and Practice for the Protection of Floodplains.

We have produced definitive Section 105 maps showing areas likely to be affected by a 1 in 200 year flood event for coastal areas and a 1 in 100 year flood event for rivers (see Appendix 12.4). Other development pressures within the catchment are likely to arise from additional tourist industry infrastructure.

Action 9.1.1	Progress S
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.	This action is ongoing. We have continued to liaise on West Somerset District Council's Local Plan; pre-inquiry changes are likely to be undertaken any time now. A Local Plan Inquiry will possibly be held in October.
Cost: £0.5k	**Time scale:** 1998-2002
Action by: Agency	**Contact:** Team Leader Planning Liaison

Action 9.1.2	Progress S
Work in partnership with West Somerset District Council to improve their environmental policies and work towards a more sustainable type of development.	West Somerset District Council is now likely to include floodplain data on the proposal maps, now they have been supplied with Section 105 maps. A public local inquiry into the Local Plan is likely to be held this year.
Cost: £0.5k	**Time scale:** 1998-2000
Action by: West Somerset District Council, Agency, National Park	**Contact:** Team Leader Planning Liaison

9.2. Impact of proposed Watchet Marina

The Agency has a number of concerns regarding the proposal for a Marina at Watchet:

- Silt deposition 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 that could deteriorate if tidal flushing arrangements are not adequate.
- Pollution risks from oil/fuel, concrete, silt and sanitation during and after construction.

Action 9.2.1	Progress S
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.	This action is continuing. No planning application has been received for this project as yet, although the marina is likely to progress. The Harbour Provision Order has now been made.
Cost: £1k	**Time scale:** 1998-2000
Action by: Agencies, Local Authorities	**Contact:** Team Leader Planning Liaison

9.3. Impact of Somerwest World, Minehead – surface water disposal

Somerwest World at Minehead has suffered from flood risk from tidal inundation and inadequate surface water drainage infrastructure. Risk from tidal flooding has been addressed as Minehead Sea Defences has been completed to schedule. The review of drainage facilities has been carried out and actioned by Dunster Drainage Board as part of the development infrastructure for Somerwest World.

Action 9.3.1	**Progress C**
Liaise with Somerwest World to ensure the wider aspects of upgrading the drainage system are considered.	Negotiations have taken place and this action has been completed.
Cost: £0.6k	**Time scale:** 1998-1999
Action by: Agency, Somerwest World	**Contact:** Team Leader Development Control

Action 9.3.2	**Progress C**
Ensure the Dunster Drainage Board and Local Drainage Authority provide input to drainage studies.	Negotiations have taken place and this action has been completed.
Cost: £0.4k	**Time scale:** 1998-1999
Action by: Agency, Dunster Drainage Board	**Contact:** Team Leader Development Control

Action 9.3.3	**Progress S**
Investigate possible wrong connections and other inputs to the Duckpool Rhyne.	Monitoring has identified elevated levels of bacteria present but it is not considered to have a significant effect on bathing water quality. Discussions are continuing with Somerwest World.
Cost: £3k	**Time scale:** 1998-2000
Action by: Agency	**Contact:** Team Leader Environment Protection West Somerset and Tone

9.4. Flooding in Williton

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 also technical, economic and environmental feasibility work.

Meanwhile, we have reviewed the operation of the upstream sluices with West Somerset District Council, who have also carried out changes to Mamsey Bridge which should now reduce the risk of flooding.

Action 9.4.1	**Progress C**
Review the need for, or operation of sluices, which affect flooding in Williton.	This action has been completed and the relevant parties contacted.
Cost: £2k	**Time scale:** 1999
Action by: Agency, West Somerset District Council	**Contact:** Team Leader Flood Defence Operations

9.5. Soil erosion

Bank erosion in the catchment is a natural process due to high energy rivers flowing through soft substrates. We continue to provide advice to riparian owners on appropriate protective measures. We are currently preparing bio-engineering guidance sheets to assist riparian owners in selecting appropriate bank protection methods, as any proposals would require Land Drainage Consent. We have also produced a leaflet *Understanding River Bank Erosion* that is available from our Customer Services section.

Changing farming practices may be contributing to the problem of soil erosion. We encourage farmers to follow the Ministry of Agriculture, Fisheries and Food (MAFF) *Code of Good Agricultural Practice for the soil* (PB0617).

Action 9.5.1	Progress S
Prepare bio-engineering guidance sheets to assist riparian owners.	We are currently producing a series of advisory leaflets to aid applicants for Land Drainage Consent.
Cost: £5k	**Time scale:** 1999-2002
Action by: Agency	**Contact:** Team Leader Conservation

Action 9.5.2	Progress S
Agency to consider setting up a multi-functional project to tackle some of the soil erosion problems in this plan area.	Soil erosion remains an issue in the area of the Doniford and Monksilver streams, and parts of the Washford River. There is no separate project as yet, but the Farming and Wildlife Advisory Group advisors, where possible, have taken the opportunity to give advice to landowners within the catchment, based on experience gained through the Tone Project.
Cost: Unknown	**Time scale:** 1999-2002
Action by: Agency, Farming and Wildlife Advisory Group, Riparian owners	**Contact:** Team Leader Conservation

Action 9.5.3	Progress S
Agency to give appropriate advice on soil erosion control.	The Agency's Environment Protection staff are dealing with this issue through e.g. farm campaigns.
Cost: Unknown	**Time scale:** 1999-2002
Action by: Agency, Farming and Wildlife Advisory Group, Riparian owners	**Contact:** Team Leader Environment Protection West Somerset and Tone

9.6. Nitrate pollution

We are concerned that excessive nitrogen-based fertilisers applied to farmland are either polluting watercourses as surface runoff or percolating through the soil and permeable rock to pollute groundwater and surface waters. This can sometimes lead to the closure of drinking water supplies, or to surface waters becoming eutrophic. We continue to liaise with the Local Authority Environmental Health Officers to identify potential sources of groundwater pollution, which are affecting private supplies in the west of the area.

As required by the European Community Nitrates Directive, the Government has designated Nitrate Vulnerable Zones (NVZs) to protect groundwater and surface water. The last 4-yearly review was carried out in 1998 and identified no Nitrate Vulnerable Zones within the catchment.

9.7. Contaminated land

Contaminated land is defined in the Environment Act 1995 as 'any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that significant harm is being caused or there is a significant possibility of such harm being caused; or pollution of controlled waters is being, or is likely to be, caused'.

On 1April 2000 the Government made Regulations under the provisions of the Environmental Protection Act 1990 requiring local authorities to identify contaminated land within their areas. Certain sites may become designated as 'special sites' and these will become the responsibility of the Agency. Contaminated land is designated as a special site where one or more of the conditions listed in Figure 9 are met.

Figure 9: Conditions for designation of contaminated land as Special Sites

A) Any of the following activities have been carried out at any time:

- Disposal of waste acid tars in a retention basin
- Purification of crude petroleum or oil
- Manufacture or processing of explosives
- The manufacture, production or disposal of chemical weapons
- The manufacture, production or disposal of biological agents or weapons
- An authorised prescribed process

B) The land is used for any of the following:

- Used for naval, military or air force purposes
- An atomic weapons establishment
- Within a nuclear licensed site
- Subject to Section 30 of the Armed Forces Act 1996

C) Land which is affecting any controlled waters that:

- Are used as a drinking water supply, and are likely to require treatment in order to be fit for human consumption, or
- Are not likely to meet the requirements for water quality specified in regulations made under the Water Resources Act 1991,or
- Are contained within one or more defined aquifers and where pollution relates to one or more of the defined substances

D) The land appears to be contaminated as a result of the escape of substances from sites that meet any of the descriptions for A and B.

Once sites have been identified we will liaise with the landowners and other appropriate persons to decide if remedial work is required. No sites have yet been identified in this catchment. Details of Special Sites, on which a remediation notice has been served, will be kept on a Public Register.

9.8. Soil acidification

Some soils, particularly those which are naturally acidic such as granite-derived or peat soils, are vulnerable to increased acidity. This effect is worsened 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. The main emissions responsible for acid deposition are sulphur dioxide and oxides of nitrogen.

In 1994 a protocol was agreed under the United Nations Economic Commission for Europe to reduce exceedences of critical loads (the rate of sulphur deposition which ecosystems can tolerate in the long term without suffering damage). The United Kingdom agreed to reduce its sulphur dioxide emissions by 80% from a 1980 baseline by 2010. The United Kingdom's sulphur strategy (published in 1996) indicates that the United Kingdom will meet interim targets for 2000 and 2005. Compliance is also expected for 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.

The West Somerset Rivers catchment contains some small areas that exceed the critical load. However, there are no known breaches of air quality standards caused by authorised Integrated Pollution Control process in the catchment (see Section 11).

10. Waste

The 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.

There are 9 waste actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

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

Waste Strategies

June 1999 saw the publication of the Governments draft statutory strategy *A Way With Waste: A Draft Waste Strategy for England and Wales*. This strategy was published in response to comments regarding the consultation paper *Less Waste More Value*. The aim is to reduce the amount of waste going to landfill sites. Landfill will remain as a method of solid waste disposal for waste that cannot be recovered, and for the residue of some recovery methods such as incineration and energy recovery. Landfill Tax, enforced by Her Majesty's Customs and Excise, currently stands at £2 per tonne for inert waste, and £10 per tonne for all other (biodegradable) wastes disposed of at landfill sites.

The Government's statutory National Waste Strategy is due to be published by the spring of this year (2000) and will incorporate waste arisings data gathered by the Agency from the National Waste Production Survey during the financial year 1998/99.

The Agency will be producing eight Regional Strategic Waste Management Assessment Reports, covering the Regional Planning Areas in England, to help local planning authorities produce Waste Local Plans. Strategic Waste Management Assessments will be updated by the Agency every three years.

By June 2000 the South West Regional Strategic Waste Management Assessment should be published, and will include the results from the Waste Production Survey on the amount of waste produced by industry and commercial businesses.

The West Somerset Rivers catchment lies within Somerset County Council's area. Somerset County Council is currently working on its draft Waste Local Plan and their Issues and Options document is due later this year.

Waste minimisation

Provision of advice and guidance to local groups on waste is ongoing. It is hoped to establish, through partnerships, a cross-functional forum for Somerset to promote a holistic approach to environmental issues (to include waste minimisation initiatives), targeting businesses, environmental management and conservation programmes.

In addition, we are contributing to achieving the Government's national waste minimisation targets in a number of different ways:

- We encourage and guide industry to develop new and improved techniques for the management of special and other industrial wastes.

- For non-integrated pollution control regulated industries we promote the Environmental Technology Best Practice Programme and Waste Minimisation Clubs.

- We have carried out a National Waste Production Survey.

- We are implementing Producer Responsibility legislation, which aims to reduce the amount of packaging going to landfill.

- We have produced our Waste Minimisation Video and good practice guide, which we use to promote best practice.

- The five District Councils in Somerset have recently agreed to work together on a joint Waste Strategy for household waste, dealing with both waste collection and management throughout the country.

We have undertaken a £1.5 million programme of research in life-cycle techniques for waste management. Life-cycle assessment is a technique in which inputs and outputs of a particular process or practice are systematically identified and quantified from 'cradle to grave'. The various options for waste disposal can then be considered in terms of their environmental impact. This methodology can aid local authorities in determining the best practicable environmental option when planning waste facilities in its area.

Action 10.1	Progress C
Contribute to National Waste Survey by collecting data in this plan area.	The National Waste Production Survey took place between October 1998 and April 1999 and involved 20 000 companies nation-wide. Data was collected from companies across a variety of industrial and commercial sectors on the amount and type of waste produced and how it was managed. The data collected by the survey will be used in the production of a statutory National Waste Strategy by the Department of the Environment, Transport and the Regions, due to be published in 2000.
Cost: £5k	**Time scale:** 1998-1999
Action by: Agency	**Contact:** Team Leader Tactical Planning

Action 10.2	Progress N
We will produce Strategic Waste Management Assessments for the use of local authorities in the North Wessex Area.	The Regional Strategic Waste Management Assessment Report will be produced in the next financial year (2000/2001) by early summer. The assessment will include the results of the National Waste Production Survey, to assist local planning authorities with the production of their Local Waste Plans and waste strategies.
Cost: £1k	**Time scale:** 2000-2001
Action by: Agency	**Contact:** Team Leader Tactical Planning

11. Major Industry

One of the Agency's key responsibilities is Integrated Pollution Control. 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. Broadly, these are the industrial processes with the greatest potential to cause pollution. The United Kingdom was one of the first countries in Europe to introduce such an integrated regulatory system, and many individual processes have now been authorised. A similar approach will be introduced throughout the European Union under the new Integrated Pollution Prevention and Control Directive (IPPC), which is to be implemented in summer 2000.

The Integrated Pollution Prevention and Control Directive requires member states 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 such as emissions of pollutants (to air, water and land), energy efficiency, consumption of new materials, noise and site restoration. The aim is to achieve 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 European Community legislation is not breached.

We are also the enforcement authority for England and Wales of the Radioactive Substances Act 1993. This statute is concerned in particular with the regulation of radioactive waste disposal. We will prosecute where breaches of a Radioactive Substances authorisation occur.

There are 13 industry regulation actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the West Somerset Rivers catchment. We will:

- continue the efficient and effective delivery of Integrated Pollution Control;
- implement the requirements of the European Community Directive on Integrated Pollution Prevention and Control;
- implement the relevant requirements of the Control of Major Accident Hazards Directive;
- develop practical working relationships with fellow regulators, particularly the Health and Safety Executive;
- encourage the use by industry of EMAS ISO14001 accreditation (standards for environmental management);
- encourage registration under the European Union Ecomanagement and Audit regulations;

- pay special attention to the needs of small and medium-sized enterprises;
- maintain and expand the Chemical Release Inventory;
- play a full and active part in the European Union Network for the Implementation and Enforcement of Environmental Law;
- ensure that radioactive releases from nuclear sites which result in exposures to individual members of the public are well within accepted limits;
- ensure that the total potential impact of releases from nuclear sites are environmentally acceptable;
- ensure improvements are made to the quality of discharges to estuarine and coastal waters;
- implement the requirements of the European Community Urban Waste Water Treatment Directive.

Hinkley Point A

Hinkley Point A nuclear power station comprises two gas-cooled Magnox reactors. Radioactive waste discharges are made to sea and air, and some low-level solid waste is transferred to Hinkley B for incineration. These disposals are authorised by the Agency under the Radioactive Substances Act 1993.

In January 1998 the Government transferred its ownership of Magnox Electric to British Nuclear Fuels plc (BNFL). As existing authorisations cannot be transferred from one company to another, BNFL requires new authorisations before it can operate Hinkley A. In late May 2000, BNFL announced that the station, which is currently closed for maintenance, will not be reopened. However, BNFL will still require new authorisations before it can decommission the site. The Agency will undertake a consultation programme before making decisions on the new authorisations.

Hinkley Point B

Hinkley Point B has two advanced gas-cooled reactors. As well as authorisations for radioactive waste disposal, this site also has an authorisation to bum radioactive waste in an incinerator. This station is operated by British Energy Generation Ltd.

The authorisations contain limits on the amounts of radioactivity that may be disposed of by each route - sea, air and incineration. These limits are set at a level that protects the public and the environment while providing sufficient room to allow some operational flexibility.

11.1. The impact of oil releases from Hinkley Point power stations

Action 11.1	Progress S
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.	A budget of £1.5 million for improvement work has been approved by British Energy for oil pollution prevention work for Hinkley B. This work will be spread over a three-year period. A £0.9 million work programme at Hinkley A is being rolled out. Process effluent streams have been fitted with oil removal devices such as oil skimmers and separators. A programme of oil cooler leak testing and integrity assessment has been underway since 1998. Contingency plans for dealing with oil spills have led to new equipment, procedures and staff training. Hinkley A also achieved ISO 14001 accreditation in 1998 and are continuing with the certification and audit process.
Cost: £1k	**Time scale:** 1998-2002
Action by: Agency, Hinkley A & B	**Contact:** Team Leader Environment Protection West Somerset and Tone

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

The main issue is the 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. Most of the necessary action lies with the company, which is 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. Discussions have taken place with the Mill and Wessex Water concerning the effluent quality and the application of the Urban Waste Water Treatment Directive to the combined discharge with the Watchet sewerage system.

Action 11.2.1	Progress C
Continue to evaluate the Paper Mill monitoring of leat conditions.	This action is complete. The Agency is satisfied with the outcome.
Cost: Nil	**Time scale:** 1998-2000
Action by: Agency, St Regis Paper Co.	**Contact:** Customer Accounts Manager

Action 11.2.2	Progress S
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.	This project is well underway. Water re-use has increased, and the part of the project aiming to maintain flow levels is due to be completed by late summer 2000.
Cost: £2.4k	**Time scale:** 1998-2000
Action by: St Regis Paper Co, Agency	**Contact:** Customer Account Manager

Action 1.1.2.3	Progress S
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.	This action has been partly completed. Further works may be required after on-site appraisal.
Cost: Unknown	**Time scale:** 1998-1999
Action by: Agency, St Regis Paper Co.	**Contact:** Team Leader Fisheries

Action 1.1.2.4	Progress S
Ensure appropriate treatment to the quality of effluent discharges from the Mill and the Watchet sewerage system (see Action 8.6.4).	The discharge from St Regis Paper Mill is being relocated through the new Wessex Water outfall to a location that has better initial dilution than the outfall previously used, although this work is primarily aimed at improving domestic sewage discharges. Phase 1 of this scheme involves the installation of primary tanks and use of the new outfall by the end of 2000. Phase 2 involving the connection of the flow from Doniford and secondary treatment is planned for completion in 2003.
Cost: £1k	**Time scale:** 2000-2002
Action by: Agency, Wessex Water Services Ltd, St Regis Paper Co.	**Contact:** Team Leader Environment Protection West Somerset & Tone

12. Appendices

12.1 Duties, powers and interests of the Agency

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Water Resources The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.	• Grant or vary water abstraction and impoundment licences on application with appropriate conditions imposed to safeguard the needs of the environment whilst allowing reasonable and justified use of available and sustainable water resources – with the aim of achieving an equitable balance between competing demands. • Revoke or vary existing licences to reinstate flows or levels to surface waters or groundwater, which have become depleted as a result of abstraction. Compensation may be payable if such powers are used. • Secure the proper use of water resources through our role in water resources planning, and the assessment of reasonable need for abstractions and the promotion of more efficient use of water resources. • Monitor and enforce abstraction and impoundment licence conditions. • Issue conservation notices to direct appropriate practices with regard to water resources issues associated with exempt de-watering activities.	• 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. • Protecting the water environment from any adverse impact due to proposed major developments.	• 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. • We use our position as a statutory consultee to the planning authorities to secure conditions and agreements to protect the water environment and that encourage water conservation measures. The Agency also seeks to influence planning decisions for new development by ensuring that planning authorities allow for any lead-time required for resource development. •The Agency 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.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Flood Defence The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.	• Control, through Land Drainage consents, development within 8m of main river (16m for tidal Thames and tributaries) (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 rivers to the public, local authorities and the police. • Consent mineral working within 16m of main rivers.	• Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. Local planning authorities also grant permission. • 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. • The installation of buffer zones that reduce flood risks and have significant environmental benefits. • Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance.	• As a statutory consultee on planning applications within main river floodplains the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts or proposed floodplain development. • The Agency will encourage best practice, including source control measures and common standards, among local authorities and riparian owners to protect and enhance the environment. • The Agency works with the civil authorities to prepare flood warning dissemination plans and supports their endeavours to protect communities at risk.
Water Quality The Agency has a duty to monitor, protect, manage and where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.	• Issue discharge consents to control pollution loads in controlled waters. • Regulate discharges to controlled waters 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.	• The control of run-off from roads and highways. This is a Highways Agency duty. • The greater use of source control measures to reduce pollution by surface water run-off. • Prevention and education campaigns to reduce pollution incidents.	• The Agency will liaise with local authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source control measures. As a statutory consultee on planning applications, the Agency will advise local planning authorities on the water quality impact of proposed developments.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Air Quality The Agency has a duty to implement Part 1 of the Environment Protection Act 1990.	• Regulate the largest technically complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, Best Available Technology Not Entailing Excessive Cost (BATNEEC) and Best Practicable Environmental Option (BPEO). • Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from the above industrial processes.	• The vast number of smaller industrial processes which are controlled by local authorities. • Control over vehicular emissions and transport planning.	• The Agency provides data on Integrated Pollution Control 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.
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.	• Issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public.	• The health effects of radiation.	• The Agency will work with users of the radioactive materials to ensure that radioactive wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with the Ministry of Agriculture, Fisheries and Food 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 Health and Safety Executive (HSE) on worker protection issues at non-nuclear sites.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
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.	• License the carriers and brokers of waste. • Refuse licence applications in certain circumstances. • Vary waste management licence conditions. • Suspend and revoke licences. • Investigate and prosecute illegal waste management operations. • Regulate Producer Responsibility Regulations.	• The siting and granting of planning permission for waste management facilities. The waste industry and local planning authorities conduct this. The Agency, as a statutory consultee on planning applications, can advise on such matters.	• The Agency will work with waste producers, the waste management industry and local authorities to reduce the amount of waste produced, increase re-use and recycling and improve standards of disposal.
Contaminated Land The Agency has a duty to develop an integrated approach to the prevention and control of land contamination, ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.	• Regulate the remediation of contaminated land designated as special sites. • Prevent future land contamination by means of its Integrated Pollution Control, Water Quality and other statutory powers. • Report on the state of contaminated land.	• Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land.	• The Agency supports land remediation and will promote this with developers, local authorities and other stakeholders.
Conservation The Agency will further conservation, wherever possible, when carrying out water management functions; have regard to conservation when carrying out pollution control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.	• The Agency has no direct conservation powers but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation.	• The conservation impacts of new development, 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 United Kingdom Biodiversity Action Plan for which it is the contact point for over 40 species and 4 habitats.	• The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. • Many development schemes have significant implications for conservation. The Agency will work with developers, local authorities, conservation bodies and landowners to conserve and enhance biodiversity.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Landscape The Agency will further landscape conservation and enhancement when carrying out water management functions; have regard to the landscape when carrying out pollution control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.	• Further the conservation and enhancement of natural beauty when exercising its water management powers and have regard to the landscape in exercising its pollution control powers.	• The landscape impact of new development, particularly within river corridors, controlled by local planning authorities.	• The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with local authorities and developers to conserve and enhance diverse river landscapes.
Archaeology The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.	• Promote its archaeological objectives through the exercise of its water management and pollution control powers and duties.	• Direct protection or management of sites of archaeological or heritage interest, carried out by local planning authorities, County Archaeologists and English Heritage.	• The Agency will liaise with those organisations that have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests.
Fisheries The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.	• Regulate fisheries by a system of licensing. • Make and enforce fisheries bylaws 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.	• The determination of planning applications which could affect fisheries.	• Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Recreation The Agency has a duty to promote rivers and water space for recreational use.	• The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management.	• Promotion of water sports, carried out by the Sports Council and other sports bodies.	• 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.

12.2. General Quality Assessment (GQA) Classification

The General Quality Assessment Scheme uses data collected for dissolved oxygen, biochemical oxygen demand (BOD) and total ammonia. The purpose of the General Quality Assessment is to report at a general level on river quality and to show trends geographically and in time. At the present time, comparisons are made annually against a baseline year of 1990.

Chemical Class	Water Quality Description
A	Very Good
B	Good
C	Fairly Good
D	Fair
E	Poor
F	Bad

12.3. River Ecosystem (RE) Classification

River Quality Objectives (RQOs) are assigned to all significantly sized rivers based on river flow. River Quality Objectives are based on the River Ecosystem Classification Scheme that consists of five classes. It sets standards for dissolved oxygen, biochemical oxygen demand (BOD), total ammonia, free ammonia, pH, dissolved copper and total zinc. River Quality Objectives are important as they form the basis for planning river water quality improvements. Class RE5 has lower limits and so in no way is the worst water quality possible.

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

12.4. Standards of Service (SoS) land use bands and targets

We can build new flood defences if flooding is a serious problem in a particular area. Nowadays we usually only build defences to protect existing built-up areas from flooding. All schemes must be technically, economically and environmentally sound. Different types of land and property need different levels of protection. We use the following indicative standards to design schemes (return periods are in years).

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

12.5. River Ecosystem (RE) Classification and River Quality Objectives (RQO) Compliance for West Somerset 1998

River Name	Public Stretch Name	Public Stretch Top NGR	Public Stretch Bottom NGR	Highest Quality RQO	Compliance
HAWKCOMBE STREAM	Hawkcombe Head to sea	SS84504550	SS87704780	1	Pass
RIVER ALLER	Source to Sea	SS92904350	SS89404850	1	BOD Marginal Fail
HORNER WATER	Nutscale Reservoir to confluence with Aller	SS86204350	SS89904790	1	Pass
AVILL TRIBUTARY	Source to confluence with Avill	SS96603890	SS95404260	2	Pass
RIVER AVILL	Source to confluence with Wootton Courtenay	SS93803850	SS95504270	1	Pass
RIVER AVILL	Confluence with Wootton Courtenay Stream to sea	SS95504270	SS99604560	2	Pass
WOOTTON COURTENAY STREAM	Hanny Combe to confluence with Avill	SS91104210	SS95504270	1	Monitoring point changed from 50120300 to 50120200. Insufficient data available to calculate compliance for 1998.
PILL RIVER	Source to Chapel Cleeve	ST00303900	ST03204280	2	Pass
PILL RIVER	Chapel Cleeve to sea	ST03204280	ST02704350	2	Pass

River Name	Public Stretch Name	Public Stretch Top NGR	Public Stretch Bottom NGR	Highest Quality RQO	Compliance
WASHFORD RIVER	Chargot House to Roadwater	SS97503690	ST03203830	1	Pass
WASHFORD RIVER	Roadwater to Watchet	ST03203830	ST07004320	1	BOD Significant Fail
WASHFORD RIVER	Watchet to Sea	ST07004320	ST07204340	2	Pass
TRAPHOLE STREAM	Downstream Mineral Lane fish farm to confluence with Washford	ST03203680	ST03203820	1	BOD Marginal Fail
DONIFORD STREAM	Flaxpool to confluence with Willett Tributary	ST14103540	ST11903590	2	Pass
DONIFORD STREAM	Willett to confluence with Flaxpool Tributary	ST11403360	ST11903590	2	Pass
DONIFORD STREAM	Willett / Flaxpool Tributary confluence to confluence with Monksilver Stream	ST11903590	ST08504240	2	Pass
DONIFORD STREAM	Confluence with Monksilver Stream to Estuary	ST08504240	ST08904290	1	BOD Marginal Fail
MONKSILVER STREAM	Combe Sydenham (source) to Monksilver	ST05803650	ST07503650	1	Pass
MONKSILVER STREAM	Monksilver to confluence with Doniford Stream	ST07503650	ST08504240	1	Pass
KILVE STREAM	Holford to Estuary	ST15504120	ST14304450	2	Pass

Map 2 - Compliance with River Quality Objectives (River Ecosystem Classification 1998)

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