

local environment agency plan

NORTH SOMERSET RIVERS FIRST ANNUAL REVIEW APRIL 2000



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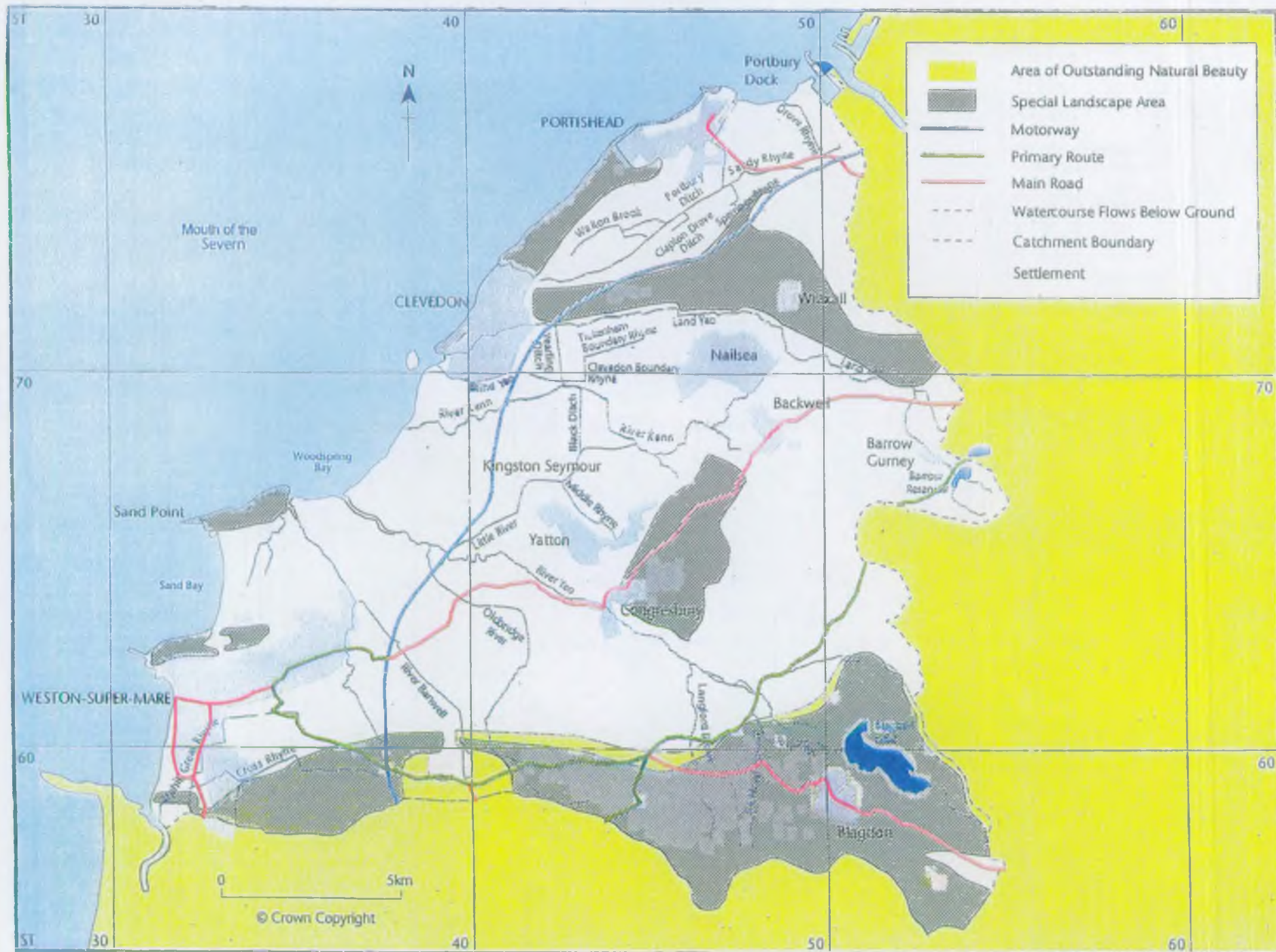
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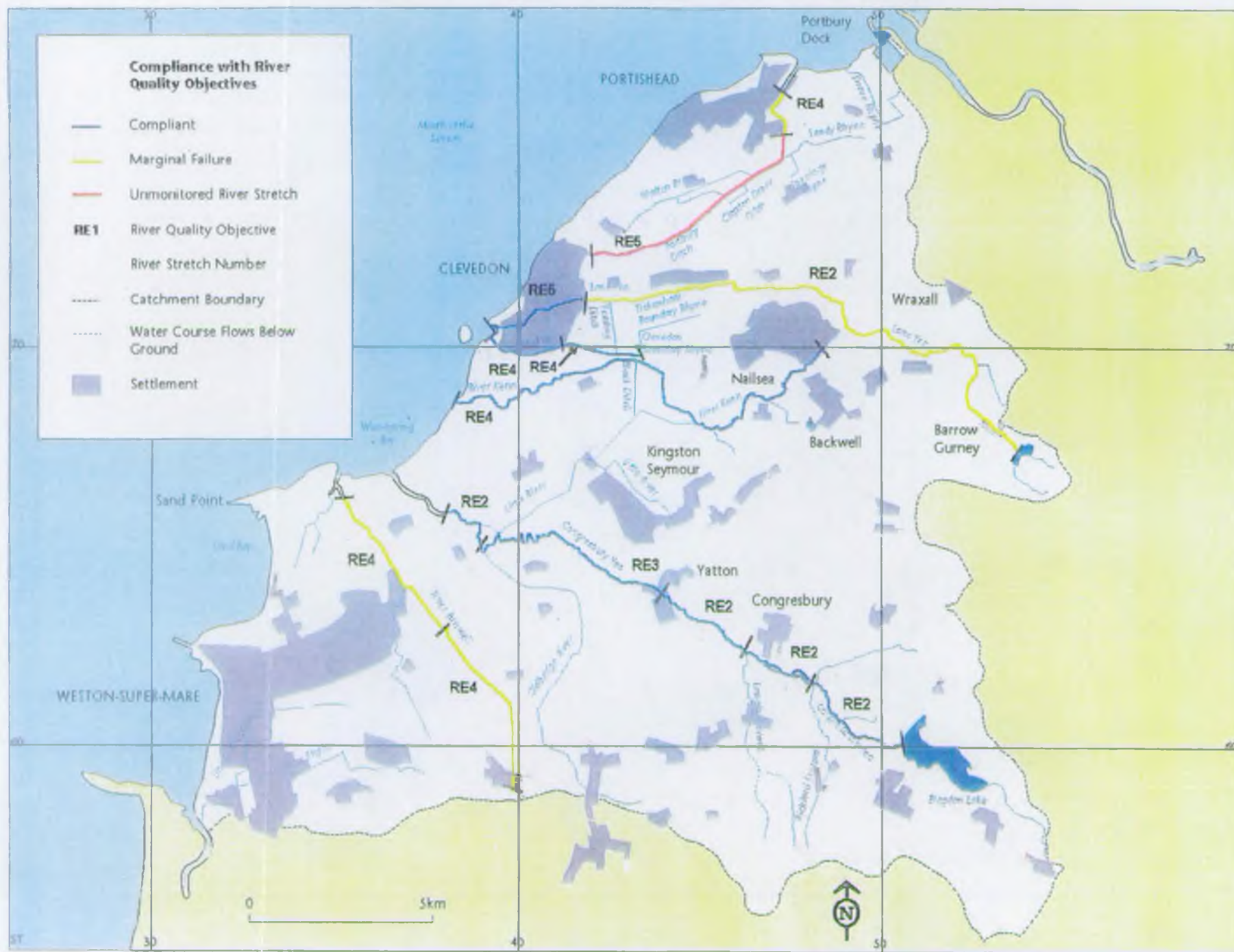


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Map 1: North Somerset Rivers Catchment



Map 2: 1998 Compliance with River Quality Objectives



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1. Introduction

1.1. North Somerset Rivers Annual Review

This is the first Annual Review of the North Somerset Rivers Action 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:

- North Somerset Rivers Consultation Report December 1997
- North Somerset Rivers Action Plan November 1998

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, 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) that 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.

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.

- **LEAP Action Plan Consultation Draft:**

The North Somerset Rivers Consultation Draft was published in December 1997, 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 300 organisations and individuals and received 53 formal responses.

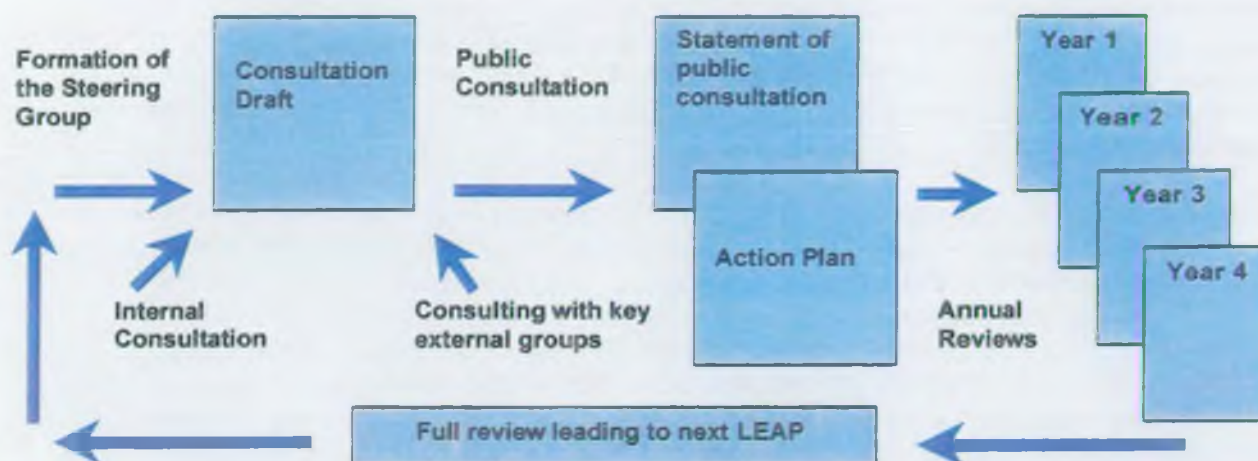
- **LEAP Action Plan:**

The North Somerset Rivers Action Plan was published in November 1998 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 North Somerset Rivers catchment.

- **Annual Reviews:**

This is the first Annual Review for the North 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 until the Action Plan is five years old, 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 North Somerset Rivers LEAP are:

Name	Representing
Mr S Brooks	Monaghan Middlebrook Mushrooms Ltd
Mr J Comer	Country Landowners Association
Mrs C Dring	North Somerset Council (Planning)
Mr B Greenwood	English Nature
Mr J Harris	Kingston Seymour Parish Council
Mr J Hayward	British Canoe Union
Mr P Hodge	Bristol Water Company
Mr T McGrath	Avon Wildlife Trust
Mr R Osmond	Vice-Chairman West Mendip Internal Drainage Board
Mr J Purchase	Clevedon Angling Club
Mr M Venning	Wessex Water Plc

If you would like to nominate a representative for the Steering Group, please contact the LEAPs Team on 01278 457333.

1.5. North Somerset Rivers Catchment overview

The catchment stretches from Brean Down in the south to the mouth of the River Avon in the north, and east to Blagdon Lake. The Severn Estuary borders the area to the west. The LEAP area combines the catchments of the Rivers Banwell, Oldbridge, Yeo, Kenn, Blind Yeo and Land Yeo, as well as Uphill Great Rhyne, Drove Rhyne and Portbury Ditch. The rivers are characterised by having short upland reaches and long lowland reaches with very low gradients. About one-third of the area is potentially floodable, relying on engineered flood defences. Nearly half of the catchment is low-lying levels and moors, where three Internal Drainage Boards (IDBs) are responsible for water management.

The catchment has a population of 178,000 (1991 census) and is concentrated in the coastal towns of Weston-Super-Mare, Clevedon and Portishead. Inland, the main settlements are Nailsea, Yatton and Congresbury. The majority of the catchment is agricultural land, with mostly cattle farming. Tourism is particularly important in the area and is concentrated in the seaside resorts. The North Somerset Levels and Moors support some nationally important areas of high nature conservation value including one National Nature Reserve (NNR) at Gordano Valley. The area also has twenty-five Sites of Special Scientific Interest (SSSIs) and 46 designated Sites of Nature Conservation Interest (SNCIs). These sites are protected by both Structure Plan and Local Plan policies.

2. Progress Report

2.1. Action Plan monitoring report

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

Climate Change
Water Resources
Fisheries
Conserving the Land
Major Industry

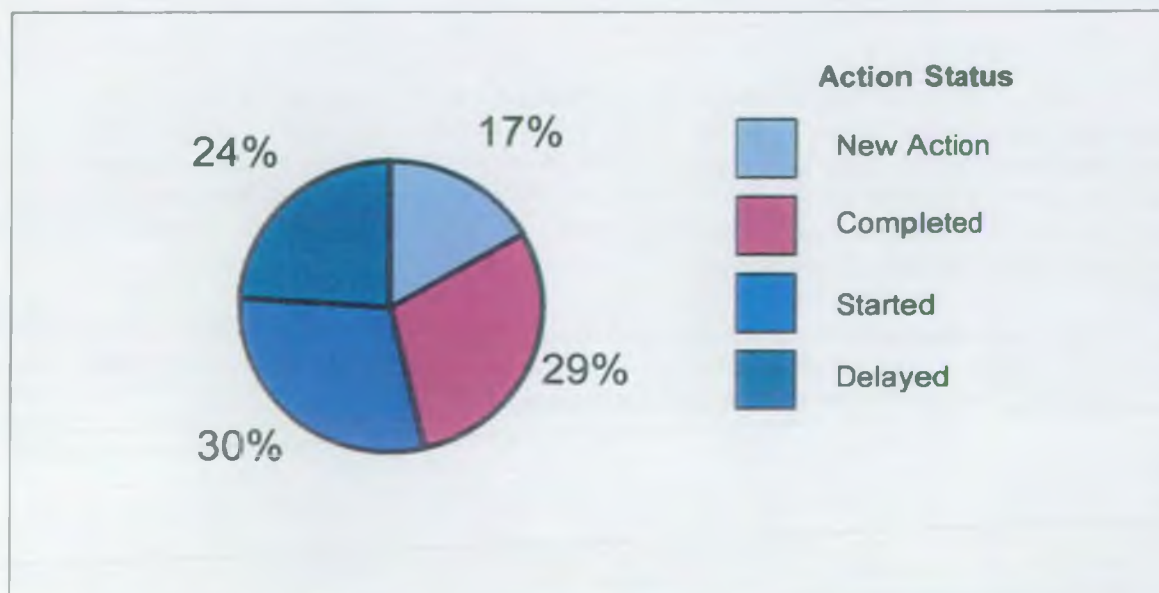
Air Quality
Biodiversity
Integrated River-Basin Management
Waste

The tables show the progress we have made on specific actions. So far, 50 of the 84 actions have been started or completed. The actions have been identified as:

N	New Action	14
C	Completed action	25
S	Started / ongoing action	25
D	Delayed / no action	20

The following chart summarises the progress we have made since the Action Plan was launched in November 1998. 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 cost 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, 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 North 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
*None in North Somerset		
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 (NAW).

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

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. 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 action in the current and next financial years. Our priorities, policies and budget may change, so changing our action programme. For example, development pressures within the catchment have resulted in a significant increase in workload, responding to both planning applications and general information requests. The outlook is for such development to continue, maintaining the pressure on staff resources and so affecting the prioritisation of non-routine actions. 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.

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. Estimated emissions of carbon dioxide nationally, from large industrial processes and other sources in the UK, reached 155 million tonnes in 1990. Britain is committed to reducing emissions to 1990 levels. We are continuing to authorise and regulate emissions to air from industrial processes within the catchment (see section 4). Emissions to air from industrial processes within the catchment remain minimal. We have also been aiming to decrease our own emissions through a reduction in business mileage and a reduction in energy consumption within our offices, achieving a 23% reduction in electricity consumption. We will continue to set targets to improve our own environmental performance using initiatives such as video conferencing to reduce business mileage.

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. We are continuing to monitor emissions from landfill sites although at present there are no significant problems within the catchment.

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. We are allowing for predicted rises in sea level as part of our flood defence work. A sea defence scheme is planned for Hurditch's after 2006 and will incorporate a sea level rise allowance.

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 North Somerset Rivers catchment. We will:

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

Action 3.1.1	Progress C
Reduce Agency North Wessex Area business mileage by 5% and our overall fuel efficiency by 3 miles per gallon (mpg) on our 1996/97 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: 1998-99
Action by: Agency	Contact: Area Business Services Manager

Action 3.1.2	Progress:
Reduce Agency North Wessex Area electricity consumption in our offices and depots by 20% compared to Energy Efficient Office (EEO) typical, or 1991/92 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: Area Business Services Manager

Action 3.1.3	Progress:
Reduce methane emissions from landfills as part of a review of landfill site licences.	The Agency is satisfied that at present there are no significant issues relating to emissions from landfill sites within the catchment. Landfill sites will continue to be monitored on a regular basis as part of our routine duties.
Cost: Unknown	Time scale: 1999
Action by: Agency	Contact: Team Leader Waste Licensing

Action 3.1.4	Progress:
Ensure Hurditch's Sea defence is constructed to latest standard incorporating a sea level rise allowance (2003/04).	The Hurditch's Sea Defence design has been completed and incorporates an appropriate sea level rise allowance. This is a lower priority non grant-aided scheme and has slipped down the long-term plan for capital projects and is now scheduled for post-2006.
Cost: £620k	Time scale: 2006
Action by: Agency	Contact: Team Leader Flood Defence Operations

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 - Major Industry). 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 UK 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 release of some pollutants such as nitrogen oxides, carbon monoxide and Volatile Organic Compounds (VOCs) have remained at similar levels. The North Somerset Rivers catchment does not have any major industrial areas, but air does not recognise catchment boundaries, and so poor quality air from elsewhere can affect air in this catchment.

There are 3 Integrated Pollution Control sites in the catchment operating cadmium electroplating, from which the main releases to air are Volatile Organic Compounds and particulate matter. We continue to monitor these sites and to reduce their emissions to air.

Figure 4: Volatile Organic Compound emissions (Kgs)

Part A/Process Operator	1996 Result	1997 Result	1998 Result	1999 Result	2000 Target	2001 Target
FHL (previously Fairey Hydraulics), Claverham	2527	1693	900	393	0	0
Praxair Surface Technologies, Weston-Super-Mare	N/A	N/A	4000	3200	*	0
GKN / Westland Industrial Products Ltd, Weston-Super-Mare	9000	11930	5762	1119	0	0

* Praxair are installing abatement equipment in August 2000, and the targets thereafter will be 0.

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 impact on air quality. North Somerset Council monitors air quality in the catchment, and the Agency is committed to reporting the results through the LEAP process (see Figure 5).

Figure 5: Summary of North Somerset Council Air Quality Monitoring Results

Parameter	Year	Location/data points	EPAQS Std:	Comments
PM10	1999	Portbury/30 data points	50 $\mu\text{g}/\text{m}^3$	Exceedence of standard at 1 data point, 53.7 $\mu\text{g}/\text{m}^3$.
Total Suspended Particles	1999	Portbury/3 locations 36 data points	200 $\text{mg}/\text{m}^2/\text{d}$	Exceedence at 1 data point, 305.2 mg .
Dust M type sampler	1999	Portbury/3 locations 156 data points	50 $\mu\text{g}/\text{m}^3$	Exceedence at 3 data points 84.5, 58.5 & 52.7 $\mu\text{g}/\text{m}^3$.
Benzene	1999	District wide (including motorway junctions) 30 locations	5 ppb	No exceedence of standard. Highest reading is 3.9 ppb.
Nitrogen Dioxide	1999	District wide (including motorway junctions) 36 locations	21 ppb (annual mean)	Several significant exceedences at motorway junctions. Occasional exceedences elsewhere with the highest measurement in one month being 28.9 ppb.

Key:

EPAQS	Expert Panel of Air Quality Standards
$\mu\text{g}/\text{m}^3$	microgram per cubic metre
$\text{mg}/\text{m}^2/\text{d}$	milligrams per square metre per day
ppb	parts per billion

The results compared well with data collected by the National Network Air Quality Site in Bristol, and no exceedences were found of the National Air Quality Strategy objectives and none were expected in the period to 2005. All measured pollutant concentrations are similar to those recorded for other rural sites in the UK. Particles (PM10s) and benzene are at background levels throughout the district with no dominant local source. Road traffic is the main source of nitrogen dioxide and carbon monoxide, with the greatest concentrations found at motorway junctions. North Somerset Council have advised that they are confident that North Somerset will attain all the Government's present air quality targets.

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 North 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.

Action 4.1.1	Progress
Ensure emissions to air from Part A processes are reduced as detailed above.	See Figure 4. In 1999 Fairey eliminated its use of trichloroethylene in its Part A prescribed process, and Praxair plans to install a VOC abatement system during 2000.
Cost: £6k p.a.	Time scale: 1998-2000
Action by: Agency, process operators	Contact: IPC Inspector / Team Leader PIR/RSR

Action 4.1.2	Progress
Reduce business mileage: see Action 3.1.1 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.
Cost: Saving	Time scale: 1998-1999
Action by: Agency	Contact: Area Business Services Manager

Action 4.1.3	Progress
Report local authority air quality monitoring results in future LEAP Annual Reviews.	The air quality monitoring results for 1999 have been included in this report (see Figure 5). We will continue to report these results on an annual basis.
Cost: Nil	Time scale: 1999-2002
Action by: Agency, North Somerset Council	Contact: Team Leader LEAPs

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;
- implement the current programme of alleviating low-flow rivers as quickly as possible;
- 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).

Water supply involves a combination of water drawn from rivers, underground aquifers (layers of water-bearing rock) and reservoirs. Within the catchment 86.5% of licensed abstraction is for public supply. Other licensed abstractions are for agriculture, industry, private domestic supply, spray irrigation, commercial and leisure. Bristol Water reports that demand is currently declining and we do not have any general licensing constraint policy for the catchment.

The water companies produced their Water Resource Plan in 1999, providing a plan up to 2025, and we will continue to monitor their progress in implementing these plans. We have also been working with the water companies to set priorities on water resource management and development expenditure, and reduce leakage. We have been working to improve water efficiency and reduce consumption within our own offices and have succeeded in reducing consumption by 30% more than our target figure.

Action 5.1.1	Progress C (see new action 5.1.7)
Manage demand: we will work with the water companies to identify any problems of meeting demands in this Resource Zone and consider practicable solutions.	The water companies produced their Water Resource Plans in March 1999. These forecast potential deficits and identified solutions for the period up to 2025. The Agency accepted the plan submitted by the company supplying the LEAP area (Bristol Water).
Cost: £2k	Time scale: 1998-2002
Action by: Agency, Bristol Water	Contact: Team Leader Water Resources
Action 5.1.2	Progress C (see new action 5.1.8)
Manage demand: we will monitor and encourage implementation of water company efficiency plans.	Bristol Water has promoted water conservation initiatives in the past year. This included promoting cistern displacement bottles and advertising water conservation in domestic and garden use, and has offered subsidised water butts to customers.
Cost: £0.2k	Time scale: 1998-2002
Action by: Agency, Bristol Water, Consumers	Contact: Team Leader Water Resources
Action 5.1.3	Progress C (see new action 5.1.9)
Manage resources: we will encourage the water companies to actively reduce leakage to economic levels.	Bristol Water met their 1998/1999 leakage target of 56.5 million litres per day (Ml/d). Their new target, set by the Office of Water Services (OFWAT), and to be achieved by March 2000 is 54.8 Ml/d. The economic level for leakage reduction is where the cost of repairing leaks is balanced with the cost of water saved.
Cost: £0.2k	Time scale: 1998-2002
Action by: Agency, Bristol Water	Contact: Team Leader Water Resources

Action 5.1.4	Progress C (see new action 5.1.10)
Work with water supply companies to prioritise expenditure on water resource management and development. Ensure the Agency's demand management targets are met.	The Agency is satisfied that the water supply companies are making progress with prioritising expenditure and activity with demand management. We worked closely with the companies when they produced their water resource plans, ensuring that environmental and social costs were taken into account when identifying preferred options to satisfy the forecast supply/demand balance. Setting hard demand management targets has not been possible due to the difficulty in quantifying the savings that can be achieved from some of the measures, such as advertising and education campaigns.
Cost: £0.2k	Time scale: 1998-2002
Action by: Agency, Bristol Water	Contact: Team Leader Water Resources

Action 5.1.5	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 in turn is 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: Area Business Services Manager

Action 5.1.6	Progress D
Improve the environmental awareness of local councillors and developers (see also action 9.1.6).	A programme of briefings / discussions with both council officers and councillors is planned.
Cost: £2k	Time scale: 2000-2001
Action by: Agency	Contact: Customer Services Manager

Action 5.1.7	Progress N
Manage Demand: monitor progress that companies make towards implementing their water resource plans and continue to work with the companies to ensure that the plans are reviewed and updated to achieve and maintain an acceptable balance between supply and demand.	New action.
Cost: £0.2k	Time scale: 2000-2002
Action by: Agency, Bristol Water	Contact: Team Leader Water Resources

Action 5.1.8	Progress N
Manage Demand: monitor and encourage implementation of water efficiency measures.	New action.
Cost: £0.2k	Time scale: 2000-2002
Action by: Agency, Bristol Water	Contact: Team Leader Water Resources

Action 5.1.9	Progress:
Manage Demand: monitor and encourage activity to reduce and achieve target levels of leakage.	New action.
Cost: £0.2k	Time scale: 2000-2002
Action by: Agency, Bristol Water	Contact: Team Leader Water Resources

Action 5.1.10	Progress:
Liaise with companies to prioritise their expenditure between water resource management and development.	New action.
Cost: £0.2k	Time scale: 2000-2002
Action by: Agency, Bristol Water	Contact: Team Leader Water Resources

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 UK Biodiversity Action Plan lists priority habitats and species which require conservation action through Regional and Local 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 over the next few years. The plans relevant for this catchment include:

- The North Somerset Council Biodiversity Action Plan (2 Species Action Plans and 2 Habitat Action Plans in draft, and others to be decided shortly)
- The Mendip District Council Biodiversity Action Plan (complete – 5 yearly review currently underway)
- The Bath and North East Somerset Biodiversity Action Plan (ongoing)
- Sedgemoor District Council Biodiversity Action Plan (completed)
- Local Agenda 21 Action Plans
- English Nature's Natural Area Profiles for Somerset Levels and Moors, Severn and Avon Vales and Mendip Hills

We have been successful in securing some funding for biodiversity actions within the catchment, and should now be able to implement some of the actions in the coming year. These actions include working with North Somerset Council on their forthcoming Biodiversity Action Plan, and work in partnership with others on species including otter and water vole. Some external funding for a community forest on the Blind Yeo is being sought. The Blind Yeo Conservation and Recreation Management Plan will be consulted on internally and externally in 2000, and funding for its implementation will be sought.

We are the national lead or contact point for over 40 species of aquatic animals and plants. Of these species, otter, water vole and native crayfish are known to occur in this catchment. A number of projects have been completed for these species, including tree planting along the River Kenn to provide otter habitat. Other projects are planned over the next few years and are awaiting funding. We have agreed to be the national contact point for four habitats, and have an important role in partnership with others in the conservation of coastal and floodplain grazing marsh and other wetland habitats.

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 North Somerset Rivers catchment. We will:

- play a full part in implementing the EU Habitats Directive;
- play a full and active part in delivering the UK's 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 reedbeds 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.

The EU Birds Directive and the EU Habitats Directive 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 achieving this 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 UK Government policy that RAMSAR wetland sites (sites identified by UK Government under the Convention on Wetlands of International Importance that was ratified by the UK Government in 1976) will also be considered under the Habitats Regulations.

The rivers in the catchment do not lie within an area designated for the purposes of the Directive, but they do drain into the Severn Estuary which is a Special Protection Area/RAMSAR/possible Special Area of Conservation, and so can impact on the site. Any proposals or applications for new authorisations which may, either alone or in combination with others, have an 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 fully into account. These licences can be either inside or outside the site, as those outside the boundary may still have the potential to impact on sites inside the boundary.

Stage II of our review procedure is currently under way using a methodology agreed with English Nature to determine which authorisations are likely to be adversely affecting these sites. The outcome of this work will be a better understanding of the current and historic water quality status of the estuary. This will enable decisions to be made on further actions that may be required under the Habitats Regulations. The Agency's Midlands, Welsh and South-West Regions are co-ordinating work on the Severn Estuary as a whole. The North Somerset LEAP area is a relatively small component of the drainage catchment to this large site. The Agency's conservation department will play an advisory role and liaise with other functions during this review.

We have contributed to Water Level Management Plans (WLMPs) within the catchment and will take these forward through the implementation process. The Water Level Management Plans have been produced with the Internal Drainage Boards, and provide an opportunity to encourage a change to farming practices that are more sympathetic to wildlife.

We continue to screen consents and authorisations to abstract water, discharge effluents, work in rivers and disposal of waste in order to limit environmental impact and seek enhancement opportunities. We have had an input into the Joint Replacement Structure Plan for Avon and the Deposit Waste Local Plan for North Somerset.

We review and comment on the ecological implications of planning applications and Environmental Impact Assessments (EIA), which involves working with developers and businesses. It is likely, given the new Environmental Impact Assessment Regulations (1999), that the Agency will, as a statutory consultee, be involved in commenting on an increasing number of Environmental Impact Assessments.

The Agency's conservation section now has a Geographic Information System (GIS) for nature conservation, landscape and archaeological sites. This system also contains information from past surveys on the distribution of biodiversity species in this LEAP area. The River Habitat Survey (RHS) database has been produced so survey results can now be produced for the North Somerset Rivers catchment.

Action 6.1.1	Progress S (see new actions 6.1.18-6.1.20)
Habitats Directive: following advice from English Nature, review current abstraction licences and consents to discharge in relation to Natura 2000 sites as required by the EU Habitats Directive.	Stage I has been completed, and the rivers in this LEAP area do not themselves lie within an area designated for the purposes of the Habitats Directive, but they do drain to the Severn Estuary. Stage II of our review procedure is currently underway. This action will be split into its separate components for future reviews.
Cost: Unknown	Time scale: 1998-2002
Action by: Agency, English Nature	Contact: Team Leader Conservation

Action 6.1.2	Progress S
Biodiversity Action Plan: work with North Somerset Council on their forthcoming Biodiversity Action Plan.	North Somerset Council has produced 4 draft Biodiversity Action Plans for water vole, otter, rivers and streams, and coastal floodplain and grazing marsh. These plans will be going for public consultation during 2000. The Agency has a number of actions in these plans and in the South West Regional Biodiversity Action Plan, which will need to be implemented. North Somerset Council will determine other priority habitats and species during 2000.
Cost: £5k p.a.	Time scale: 1998-2002
Action by: Agency, North Somerset Council, English Nature, The Wildlife Trust	Contact: Team Leader Conservation

Action 6.1.3	Progress C (see new action 6.1.17)
Coastal and Floodplain Grazing Marsh: we are continuing to contribute to the development of Water Level Management Plans within the North Somerset Catchment (see 8.2).	The main contribution to the North Somerset Catchment Water Level Management Plans is complete.
Cost: £4.4k p.a.	Time scale: 1998-2002
Action by: Agency, Internal Drainage Boards	Contact: Team Leader Conservation

Action 6.1.4	Progress S
Reedbeds: help to promote reedbed habitat creation in partnership with others e.g. North Somerset Levels and Moors Project (NSL&MP). Provide technical advice on the use of reedbeds as part of the stormwater attenuation and treatment systems associated with development.	The Agency will continue to promote reedbed creation for conservation benefit and to advise developers on surface water attenuation using reedbeds and other sustainable drainage systems. This is on-going as part of the Agency's involvement in the planning process.
Cost: £2k p.a.	Time scale: 1998-2002
Action by: Agency, North Somerset Council, North Somerset Levels and Moors Project, Wessex Water, Internal Drainage Boards	Contact: Team Leader Conservation

Action 6.1.5	Progress D
Tufa Streams: survey tufa-depositing springs and headwater streams to assess value and develop conservation strategy.	There has been no action as yet due to lack of funding. Survey will be carried out when funding becomes available.
Cost: £3k	Time scale: 2000-2001
Action by: Agency, Bristol Regional Environmental Records Centre (BRERC), The Wildlife Trust	Contact: Team Leader Conservation

Action 6.1.6	Progress D
Water Voles: increase our knowledge of distribution and investigate the main reasons for the absence of water voles from large areas of the catchment, in partnership with others.	No strategic survey undertaken to date, but will be implemented when funding becomes available. The distribution of water voles in this LEAP area is still very limited. The Agency is increasing its knowledge of their requirements via national research and development. However, local knowledge of their distribution is still lacking. North Somerset Council, the Agency and Avon Wildlife Trust are hoping to train a number of volunteers in water vole surveying via the North Somerset Levels and Moors Project.
Cost: £3k	Time scale: 1998-2002
Action by: Agency, North Somerset Levels and Moors Project and project partners	Contact: Team Leader Conservation
Action 6.1.7	Progress S
Otters: develop a partnership to monitor otter populations.	The North Somerset Levels & Moors Project, of which the Agency is a partner, are trying to establish a partnership to monitor otters. North Somerset Council, the Agency and Avon Wildlife Trust are hoping to train a number of volunteers in otter surveying via the North Somerset Levels and Moors Project.
Cost: £3k	Time scale: 1998-2002
Action by: Agency, North Somerset Levels and Moors Project and project partners	Contact: Team Leader Conservation
Action 6.1.8	Progress S
Otters: establish otter corridor links to adjacent catchments through habitat creation.	Some works have been carried out in the top of the Congresbury Yeo catchment to improve otter links into and from the Chew Valley. Further works may be identified, in partnership with the North Somerset Levels & Moors Project.
Cost: £5k	Time scale: 1998-2002
Action by: Agency, North Somerset Levels and Moors Project and project partners	Contact: Team Leader Conservation
Action 6.1.9	Progress C (see new action 6.1.22)
Otters: enhance habitats.	Tree planting has now taken place along the River Kenn, and is providing valuable otter habitat.
Cost: £5k	Time scale: 1998-2002
Action by: Agency, North Somerset Levels and Moors Project and project partners	Contact: Team Leader Conservation

Action 6.1.10	Progress S
Otters: collect carcasses of otter road casualties and send for tissue analysis.	One otter carcass was collected from this LEAP area in December 1999. At present, the Agency is continuing to collect road casualties for tissue analysis.
Cost: £1k p.a.	Time scale: 1998-2002
Action by: Agency	Contact: Team Leader Conservation
Action 6.1.11	Progress D
Barn Owls: extend scheme to provide and monitor nest boxes and manage habitat to encourage voles on Agency-owned land on the Blind Yeo.	This action has not been carried out to date due to lack of funds. This action will involve changes to current Agency land management, which is under review.
Cost: £2.5k p.a.	Time scale: 2000-2002
Action by: Agency, Hawk and Owl Trust	Contact: Team Leader Conservation
Action 6.1.12	Progress D
Native Crayfish: extend survey work, particularly within the Upper Congresbury Yeo and Land Yeo catchments, to enable the formulation and implementation of a local crayfish conservation strategy.	This action has not been carried out to date and is subject to finding suitable funds.
Cost: £2-3k	Time scale: 2000-2002
Action by: Agency	Contact: Team Leader Fisheries / Team Leader Biology
Action 6.1.13	Progress D
Great Crested Newts: undertake a desktop survey to enable the formulation and implementation of a conservation strategy.	This action has not been carried out to date and is subject to finding suitable funds.
Cost: £1.5k	Time scale: 2000-2002
Action by: Agency, Bristol Regional Environmental Records Centre	Contact: Team Leader Conservation
Action 6.1.14	Progress S
Eels: implement recommendations of Barriers to Migration Survey (see Action 7.1.2).	A national strategy for eels is currently being formulated by the Agency, which will consider, amongst many aspects, migratory access for eels to rivers. No structures in the area of this LEAP have specifically been identified as yet for modification. Experimentation with elver passes is being trialed at some locations to investigate cost-effective techniques.
Cost: Unknown	Time scale: 1998-2002
Action by: Agency	Contact: Team Leader Fisheries

Action 6.1.15	Progress S
Continue to assess and monitor the distribution of invasive and alien plants and problems associated with alder disease.	The Agency continues to raise awareness and give advice on invasive plants and alder disease. There has been no survey or monitoring of their distribution since this is not considered to be a major problem in this catchment. We will take action if this proves to be a problem in the future, in partnership with others.
Cost: £4k	Time scale: 1998-2002
Action by: Agency, North Somerset Levels and Moors Project, Bristol Regional Environmental Records Centre, Avon Wildlife Trust, Forest of Avon, Local Authorities	Contact: Team Leader Conservation
Action 6.1.16	Progress N
River Habitat Survey: interrogate the database and report back on the findings in the next annual review.	New action.
Cost: £1k	Time scale: 2000-2001
Action by: Agency	Contact: Team Leader Conservation
Action 6.1.17	Progress N
Coastal and Floodplain Grazing Marsh: Take the Water Level Management Plans forward through the implementation programme process, and other actions through the Agency's involvement as a partner for the South West Habitat Action Plan.	New action.
Cost: Unknown	Time scale: 2000-2002
Action by: Agency, North Somerset Levels and Moors Project, English Nature, Internal Drainage Boards	Contact: Team Leader Conservation
Action 6.1.18	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 6.1.19	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 Consents

Action 6.1.20	Progress
Habitats Directive: review impact of current and new 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

Action 6.1.21	Progress
Otters: identify new opportunities for enhancing habitats within the catchment via the North Somerset Levels & Moors Project.	New action.
Cost: £5k	Time scale: 2000-2002
Action by: Agency, North Somerset Levels and Moors Project and project partners	Contact: Team Leader Conservation



Guaging station on the River Kenn: See Action 6.1.3

North Somerset Levels and Moors Partnership farm visit: See Section 6



Tree planting on the River Kenn to provide otter habitat: See Action 6.1.9



Water vole – a local Biodiversity Action Plan species: See Action 6.1.6





**The Blind Yeo: See
Actions 8.6.1 and 8.6.2**

**Hairy Dragonfly:
See Section 6**

**Retention pond for surface water on the River
Banweil, adjacent to new development: See
Section 9**



**Outfall on the Blind
Yeo: See Action 6.1.14**



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 EU Freshwater Fish Directive was adopted which set water quality objectives for designated stretches of water, enabling fish to live and breed in favourable conditions. We routinely monitor every river fishery, and we completed a survey of fish stocks on the Congresbury Yeo in 1999. Other actions are dependent on national strategies and funding.

There are 5 fisheries 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:

- monitor every river fishery over a five-year rolling cycle (this is a national target and here in North Wessex we will find this difficult to achieve; 6-7 years would be more realistic with current staffing levels);
- restore spawning grounds for freshwater fish;
- implement a programme of minimum acceptable flow for rivers;
- develop specific longer-term strategies for salmon, trout and coarse fisheries;
- reduce poaching to a minimum and bring rod licence evasion to under 10%.

We will also address the following problems:

- Penning (holding back river levels artificially high using structures such as fixed weirs or adjustable sluices) and low flows which cause or contribute to adverse effects on fisheries. Algal blooms can cause or contribute to the exceedence of EU Freshwater Fish Directive Standards.
- Maintenance of rivers, particularly weed-cutting, can damage habitats and can stir up sediment causing oxygen depletion and distress to fish. Also, the operation of sluices by private owners as well as Agency staff, need to take fisheries into account.

Action 7.1.1	Progress/D
Contribute to National Research & Development to investigate the effect of river control structures on fisheries. This Action is deferred while awaiting funding.	This Research and Development project proposal was originally submitted to the national programme but it has not been selected. The issue of fish losses continues to be reported by angling clubs when the sluice gates are raised rapidly by the Agency's Flood Defence department in response to heavy rainfall and flooding risks. It is not known whether the Research and Development can be reinstated as it is subject to national funding priorities.
Cost: Unknown	Time scale: Unknown
Action by: Agency	Contact: Team Leader Fisheries

Action 7.1.2	Progress S
Implement Barriers to Migration survey (eels and elvers), subject to funding.	A national strategy for eels is currently being formulated by the Agency. This will consider among many aspects migratory access for eels to rivers. No structures in the areas of this LEAP have specifically been identified as yet for modification. Experimentation with elver passes is being trialed at some locations to investigate cost effective techniques.
Cost: Unknown	Time scale: Unknown
Action by: Agency	Contact: Team Leader Fisheries

Action 7.1.3	Progress C
Assess fish stocks in Congresbury Yeo.	The Congresbury Yeo was surveyed for its fish population in 1999, as part of a five year rolling programme. The river typically holds reasonable numbers of coarse fish in the middle to lower reaches and supports in general, good numbers of brown trout in the upper reaches. The fish stocks are reasonably healthy where there is cover and suitable habitat, but eel numbers are in general fewer than recorded five years previously.
Cost: £2k	Time scale: 1999
Action by: Agency	Contact: Team Leader Fisheries

Action 7.1.4	Progress D
Draw up improved strategy for river maintenance to reduce harm to fisheries (also see action 8.3.1).	The report on flood defence maintenance practices on the Somerset Levels and Moors (July 1999) did not contain a specific strategy for the protection of fish. Following public consultation on the report a steering group is to be set up by the Somerset Levels Flood Defence Committee. No other plans to draw up this strategy currently exist.
Cost: £1.5k	Time scale: Unknown
Action by: Agency	Contact: Team Leader Flood Defence Operations

Action 7.1.5	Progress S
Contribute to a national review of licence duties for eel and elver fishing.	The review of eel licensing is being carried out nationally and a public consultation is likely to occur in 2000.
Cost: Unknown	Time scale: 1998-2000
Action by: Agency	Contact: Team Leader Fisheries

Action 7.1/6	Progress D.1
Establish the frequency of algal blooms, the extent of eutrophic effects and the source of excess nutrients (also see action 8.2.1).	The Agency has not been able to progress on this action due to commitments to monitor and assess Urban Waste Water Treatment Directive (UWWTD) sites on the Bristol Avon, and work on the River Tone. We have responded to any algal bloom problems, but no significant incidents have been reported. We will continue to respond to, and assess, any local problems in the area. Work to assess eutrophication is not currently planned for the area, due to the difficult and costly nature of assessing the problem. If this issue becomes a higher priority eutrophication could be looked into 2001/2002.
Cost: £2k	Time scale: 1999-2002
Action by: Agency	Contact: Team Leader Biology

8. 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.

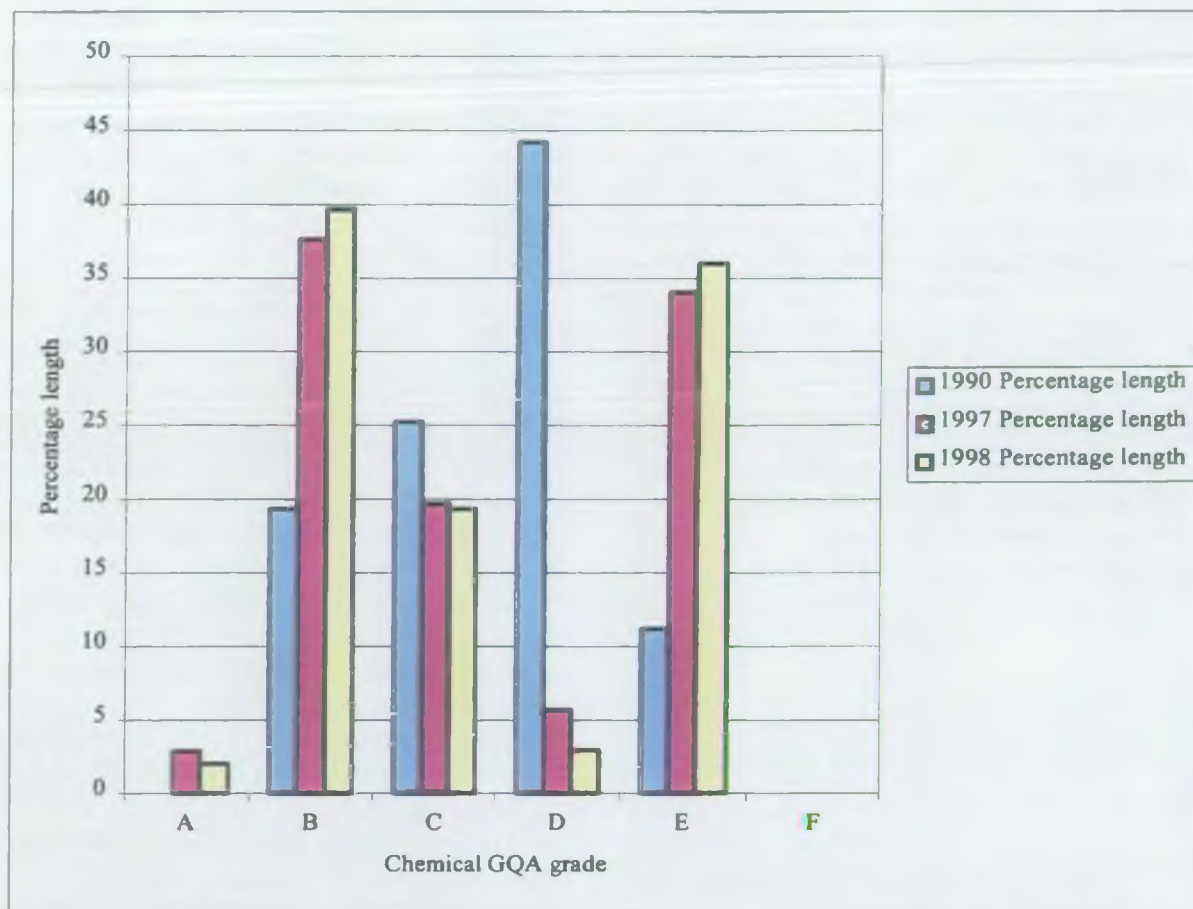
There are 13 integrated river-basin management actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) that apply to the North Somerset Rivers catchment. We will:

- 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;
- enhance and conserve inland navigations, as national assets of environmental, economic, social and recreational value;
- improve river habitat quality as measured by the river habitat surveys;
- improve wetland management;
- improve riverside landscapes;
- improve bathing water quality (see Severn Estuary Joint Issues Report);
- 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.

We are undertaking site assessments for Agency-owned land in North Somerset. This involves assessing the conservation, recreation and landscape value and potential of the land that we own. In the future, we will be undertaking risk assessments for these holdings where we propose to promote recreation.

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 in quality. The following chart shows the percentage length of watercourse in the North Somerset LEAP catchment by Chemical General Quality Assessment Grade for 1990, 1997 and 1998.

Figure 6: Percentage length of watercourse by chemical General Quality Assessment Grade



Although there appears to have been an improvement in water quality since 1990 (as the percentage of watercourse length grade A or B has increased), the percentage grade E has also increased dramatically from 11.2% to 36%. This may be the result of stretches downgrading from D as the percentage length grade D decreased by 41.3% over the same period.

The General Quality Assessment criteria and River Ecosystem classification are given in Appendices 12.2 and 12.3. The River Ecosystem classification and River Quality Objectives schedule of compliance for North Somerset Rivers in 1998 is given in Appendix 12.5.

Within the catchment, the North Wessex Area Resources Team maintains river flow measuring stations at Iwood on the Congresbury Yeo, and at Wraxall on the Land Yeo. We maintain a tipping bucket rain-gauge at St Georges, Weston-Super-Mare, which provides a record of rainfall intensity. Four rainfall observers in this catchment provide the Agency with records of daily rainfall totals. These measurements form part of a wide hydrometric network throughout the North Wessex Area, which enables the Agency to monitor and inform on the state of water resources. Catchment specific figures for incidents in Environmental Protection are not available but regional data on incident numbers for 1998 for water quality indicates a reduction on previous years. The oil and construction industry sectors were targeted for pollution prevention in 1998/1999. A target of 5% reduction in incident numbers was comfortably reached.

The water companies' investment programme for the period 2000-2005 is known as Asset Management Plan 3 (AMP3). Asset Management Plan 3 has been developed along guidelines agreed between the Environment Agency, the Department of the Environment, Transport and Regions, the water services companies and the Office of Water Services. The Environment Agency has agreed with the Department of the Environment, Transport and Regions which sewage discharges require improvement during Asset Management Plan 3. The Office of Water Services has now completed a review of water prices, which allows for this programme of environmental investment and enables the companies to make the environmental improvements by 2005. Many of these schemes will be delivered before 2005. We expect improvements at the Sewage Treatment Works at Ubley to be carried out in Asset Management Plan 3.

8.1. Decline in water quality

Action 8.1.1	Progress D
Review River Quality Objectives, currently River Ecosystem 5, for the stretch: River Land Yeo – Clevedon to sea.	Problems with quality in this stretch continue with one fish kill early in 1999. There has been no progress on reviewing River Quality Objectives, which reflect existing quality. The reasons for the existing quality will be explored through the review detailed in Action 8.1.2. Any River Quality Objective changes will involve Regional Water Quality. Should an upgrade be proposed, the timing of the application of any upgrade will depend on policy regarding the upgrading of River Quality Objectives, which is currently being agreed between the Agency and the Department of the Environment, Transport and Regions.
Cost: £3k	Time scale: 1999-2000
Action by: Agency	Contact: Team Leader Environmental Protection

Action 8.1.2	Progress D
A full review of all factors affecting water quality, including flow, on those stretches with River Ecosystem 4 and 5 as proposed objectives.	In the absence of funding we are likely to carry out a detailed study in-house, commencing this spring. Some work has already started, looking at the possible influence of potable water supply abstractions on water quality in specific river catchments. The study will assess the potential for rivers with River Quality Objectives of River Ecosystem 4 and 5 to be improved.
Cost: £8k	Time scale: 1999-2001
Action by: Agency, Internal Drainage Boards	Contact: Team Leader Environmental Protection

8.2. River regulation and nutrient enrichment

Action 8.2.1	Progress D
Establish the extent of eutrophic effects.	See Action 7.1.6. This action also relates to 8.2.2.
Cost: £2k	Time scale: 1999-2002
Action by: Agency	Contact: Team Leader Biology

Action 8.2.2	Progress S
Work with others to reduce nutrient levels by controlling point sources and diffuse agricultural pollution (see issue 4.8 Consultation Report); once the source of nutrients has been pinpointed, we will target specific campaigns in those areas, including the promotion of buffer strips where possible.	This is an ongoing activity in the catchment. In the course of the year, we have taken enforcement action against one farmer in the Congresbury Yeo catchment, resulting in a formal caution.
Cost: £0.5k p.a.	Time scale: 1998-2002
Action by: Agency, farmers, Ministry of Agriculture, Fisheries and Food, Farming and Wildlife Advisory Group	Contact: Team Leader Environmental Protection

Action 8.2.3	Progress S
Improve our regulation of the spreading of waste to land to prevent water pollution. Identify any trouble spots.	One problem was identified in 1999. This resulted in the pollution of a significant length of a tributary of the Oldbridge River. Evidence has been gathered with a view to prosecution. The polluter is currently seeking to legitimise operations via an Exemption issued under the provisions of the Waste Management Licensing Regulations.
Cost: £2k p.a.	Time scale: 1998-2002
Action by: Agency, farmers, Ministry of Agriculture, Fisheries and Food	Contact: Team Leader Environmental Protection

Action 8.2.4	Progress S
Review control of penning structures through the Water Level Management Plan process and identify opportunities for raising winter water levels.	This review is currently under way.
Cost: Unknown	Time scale: 1998-2003
Action by: Agency, Internal Drainage Boards	Contact: Flood Defence Project Officer

Action 8.2.5	Progress D
Consider the provision of additional storage volume to provide more irrigation water.	This action is a low priority and no progress has yet been made due to a lack of funding.
Cost: Unknown	Time scale: 1999
Action by: Agency	Contact: Area Flood Defence and Water Resources Manager

8.3. Impact of river maintenance

Action 8.3.1	Progress C
Review flood defence maintenance and develop Flood Defence Management System.	The report on flood defence maintenance practices on the Somerset Levels and Moors was published in July 1999. The Flood Defence Management System has now been developed and used to assess maintenance in this catchment (see also 8.3.2 and 8.3.3).
Cost: Unknown	Time scale: 1998-2001
Action by: Agency	Contact: Team Leader Flood Defence Operations

Action 8.3.2	Progress C
Survey assets: classify upland river reaches in accordance with the Standards of Service Land-use bands and targets (see Appendix 12.4).	The river reach classification was completed in January 2000 using Standard of Service methodology.
Cost: Unknown	Time scale: 1998-2001
Action by: Agency	Contact: Team Leader Flood Defence Operations

Action 8.3.3	Progress C
The current state of flood protection will be compared to the standards in 1998 and differences addressed (see Appendix 12.4).	The current level of flood protection was compared with its classification level (see 8.3.2) and now the differences are being addressed. Some stretches will require less maintenance than before whilst others will require more or may even require a capital scheme.
Cost: Unknown	Time scale: 1998-2001
Action by: Agency	Contact: Team Leader Flood Defence Operations

Action 8.3.4	Progress D
Seek resources to re-engineer channels and floodbanks to provide a more natural shape and improved habitat diversity as need or opportunity arises.	This action is a low priority and no progress has been made to date due to a lack of funding.
Cost: Unknown	Time scale: 1998-2002
Action by: Agency, riparian owners, developers, North Somerset Council	Contact: Area Flood Defence and Water Resources Manager

Action 8.3.5	Progress: S
Explore tree-planting opportunities and implement where funding becomes available to provide shade and reduce the need for aquatic weed cutting as appropriate sites are identified. The riparian owner's agreement is needed; maintenance access should not be blocked; and the planting should not damage an important habitat.	Opportunities for tree planting are being identified and will be implemented when funding becomes available.
Cost: £0.5k	Time scale: 1998-2002
Action by: Agency, Farming and Wildlife Advisory Group, landowners, Internal Drainage Boards, North Somerset Levels and Moors Project	Contact: Team Leader Conservation

8.4. Impact of agricultural discharges and runoff

Action 8.4.1	Progress: C
Install automatic monitors on the Land Yeo downstream from suspected discharges.	Two monitors were deployed on the Land Yeo from January to April 1999. Data from these monitors identified no problematic discharges.
Cost: £2k	Time scale: 1999
Action by: Agency	Contact: Team Leader Environmental Protection

Action 8.4.2	Progress: C
Revisit all farms where there is a suspected waste problem to ensure that farm waste management is effective, and take enforcement action against farms which discharge illegally.	A mini campaign took place on the upper reaches of the Land Yeo catchment, aimed at identifying any potentially polluting practices. None of the farms visited were identified as posing a significant risk of pollution.
Cost: £4k	Time scale: 1999-2000
Action by: Agency	Contact: Team Leader Environmental Protection

Action 8.4.3	Progress: C
Monitor the discharge from Monaghan Middlebrook Mushrooms Ltd and Langford Brook downstream of the site to check effectiveness of the new arrangements.	Discharge from the site is currently compliant. Both the Langford Brook and Congresbury Yeo are routinely inspected downstream of the discharge and no problems are evident.
Cost: £2.5k	Time scale: 1998-1999
Action by: Agency	Contact: Team Leader Environmental Protection

8.5. Barrow reservoirs and treatment work

Action 8.5.1	Progress: C
Determine consent for Bristol Water to discharge into a tributary of the Land Yeo.	The consent was issued January 1999 (see Action 8.5.2).
Cost: £0.6k	Time scale: 1998
Action by: Agency	Contact: Team Leader Consents

Action 8.5.2	Progress: C
Extend the monitoring downstream of the water treatment works.	Extended monitoring showed an absence of evidence of continuing problems, and so this action is now complete. We will continue the routine monitoring programme downstream of the discharge from the water treatment works, and if there is any evidence of problems with the quality of the discharge or the receiving water, the monitoring intensity will increase.
Cost: £2k	Time scale: 1998
Action by: Agency	Contact: Team Leader Environmental Protection

Action 8.5.3	Progress: D
Undertake a review of all aspects of the dry stretch below the works, and produce a report.	The action has been included in a review of issues for which solutions are required within the next five years. A prioritised programme of work for all these issues is being prepared.
Cost: £10.5k	Time scale: 2000-2004
Action by: Agency	Contact: Team Leader Water Resources

8.6. Recreational use of Agency-owned land and water

Action 8.6.1	Progress: S
Complete production of a Conservation and Recreation Management Plan for the Blind Yeo.	This action is ongoing. An internal draft has been produced.
Cost: £2k	Time scale: 1998-2002
Action by: Agency	Contact: Team Leader Conservation

Action 8.6.2	Progress: D
Implement Blind Yeo Conservation and Recreation Management Plan.	The plan will need to be completed prior to implementation
Cost: £10k	Time scale: 2000-2002
Action by: Agency	Contact: Team Leader Conservation

Action 8.6.3	Progress: D
Investigate feasibility of developing canoe access where appropriate.	No progress on this action to date.
Cost: Unknown	Time scale: 1998-2002
Action by: Agency, British Canoe Union	Contact: Team Leader Fisheries

Action 8.6.4	Progress C
Explore the use of Agency-owned land to extend the Two Rivers Way west of Congresbury Road Bridge.	This action has been resolved without the use of Agency-owned land. This action is therefore complete.
Cost: Unknown	Time scale: 1999
Action by: Agency	Contact: Team Leader Conservation

Action 8.6.5	Progress N
Complete site assessments for our land holdings in North Somerset.	New action.
Cost: £1k	Time scale: 2000
Action by: Agency	Contact: Team Leader Conservation

Action 8.6.6	Progress N
Undertake a risk assessment where and when the Agency is proposing to promote recreational use of it's land.	New action.
Cost: £1k	Time scale: 2000-2002
Action by: Agency	Contact: Team Leader Conservation

8.7. Riverside landscapes

Action 8.7.1	Progress C
Continue to assess the impact on the landscape character of the river corridors where alder disease may have a significant impact on the visual amenity.	This issue has been assessed as not being a major problem within the catchment, and so no further action is required at present. We will review the situation should it change in the future.
Cost: Unknown	Time scale: 1999-2000
Action by: Agency, North Somerset Council, North Somerset Levels and Moors Partnership, Bristol Regional Environmental Records Centre, Avon Wildlife Trust, Forest of Avon	Contact: Team Leader Conservation

8.8. Impact of synthetic pyrethroid sheep dip

Action 8.8.1	Progress C
Review data from the water companies on the occurrence of sheep dip in raw waters for potable supply.	The data has been reviewed. There is no evidence of a problem currently with sheep dip chemicals in raw waters.
Cost: £1k	Time scale: 1998
Action by: Agency	Contact: Team Leader Environmental Protection

Action 8.8.2	Progress
Implement targeted monitoring programme of surface waters.	In the absence of evidence of raw water contamination by sheep dip compounds, it has not been possible to target 'hot spots'. We have identified five spring sources in the North Somerset Rivers area and will monitor these for appropriate contaminants in 2000, over the sheep-dipping period. This action has therefore slipped a year.
Cost: £2k	Time scale: 1999-2000
Action by: Agency	Contact: Team Leader Environmental Protection

Action 8.8.3	Progress
Establish the areas where sheep farming is prevalent and identify high-risk watercourses and groundwater sources.	Progress has been hampered by the absence of a database of sheep farmers to allow targeting of our awareness campaign. We are hopeful that such a database will become available to the Agency in 2000.
Cost: £0.5k	Time scale: 1999-2000
Action by: Agency	Contact: Team Leader Environmental Protection

Action 8.8.4	Progress
Carry out a sheep-dip awareness campaign in the areas identified in Action 8.8.3.	Awaiting progress to action 8.8.3. Will be carried out in the summer of 2000, assuming we have an appropriate database by that time.
Cost: £2k	Time scale: 1999-2000
Action by: Agency	Contact: Team Leader Environmental Protection

8.8. Bathing Water Quality

The EU 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, 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.

European Blue Flag awards are administered in the UK by the Tidy Britain Group on behalf of the Foundation for Environmental Education in Europe. 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. Figure 7 shows the survey results for the designated bathing beaches in the North Somerset Catchment.

The Agency also regulates discharges to controlled waters with respect to water quality objectives. The EC Urban Waste Water Directive 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 7: Bathing Water survey results 1997-1999 (mandatory standards)

Bathing Water	1997	1998	1999
Clevedon Beach	Pass	Pass	Pass
Weston-Super-Mare Sand Bay	Pass	Pass	Pass
Weston-Super-Mare Main	Pass	Pass	Pass
Weston-Super-Mare Uphill Slipway	Fail	Pass	Pass

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

From time to time we receive complaints about sewage debris washed up on beaches. We will be carrying out a survey of beach debris in July 2000 as part of a national project. The two largest Sewage Treatment Works discharging into the Severn Estuary (Weston and Kingston Seymour) have been improved as part of Wessex Water Services Ltd's spending plans for 1995 to 2000 (Asset Management Plan 2), and should result in some reduction of debris on beaches. Avonmouth Sewage Treatment Works will be improved by September 2000; although this is outside the catchment it is likely that its discharges could affect North Somerset beaches, and we hope for further improvements after September.

We have also been working with Wessex Water to identify intermittent discharges such as storm overflows or combined sewer overflows which are having an unacceptable environmental impact. Between 2000-2005 all known unsatisfactory intermittent discharges within the catchment will be improved to meet current legislative requirements and to protect the estuary. The details of the programme (Asset Management Plan 3) will be made available to the public by the Department of the Environment, Transport and the Regions in the early summer 2000. Between 2000-2005 regular progress reports will be made to our Area Environment Group.

We also encourage responsible disposal of waste by individuals. For example, personal hygiene products such as sanitary protection and cotton buds should be disposed of in the bin rather than flushed down the toilet.

9.2 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. We advise local planning authorities on the location of development in relation to flooding issues. We are supplying detailed indicative floodplain maps (Section 105 maps) to the local authorities to guide their work on steering development away from river floodplains. In accordance with the aims of sustainable development and land-use planning, we aim to ensure through the local planning authority that all necessary flood protection works are incorporated into new development.

A map has also been produced for each local authority highlighting environmental issues relevant to the planning process in their areas. This is complemented by a document explaining the reason for the Agency's interest and how more information can be obtained.

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 North Somerset Rivers catchment. We will:

- influence the Town and Country Planning systems 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.

Some tidal and river defences in the catchment require upgrading to achieve the Ministry of Agriculture, Fisheries and Food indicative standard of protection for urban areas before any development could take place in the defended areas. We are forming a working group with the local planning authority to agree a strategy for the River Banwell, which only has agricultural standard river defences at present. The river currently poses a threat to the development at Locking Castle, Weston-Super-Mare, as does inadequate drainage infrastructure in the development area. North Somerset Council has halted development until a solution is worked out.

New tidal defences have already been completed at Portbury Dock, which give tidal protection to the 1:200 year event. This area is identified as an Action Area within the North Somerset Local Plan for residential/retail and employment use. The defences were previously constructed to agricultural standard only, with the majority of the area at risk from flooding. The Agency has also taken responsibility for maintenance of the new defences. See Appendix 12.4 for the Standard of Service bands used for determining levels of flood defence.

9.1 Flood defence and development

Action 9.1.1	Progress S
Agree a strategic and environmentally sustainable plan for the drainage and flood prevention infrastructure for all proposed and future land-use allocations within the River Banwell and Uphill Great Rhyne catchments.	The Agency and Local Planning Authority are to form a working group to action a programme of works for the River Banwell.
Cost: Unknown	Time scale: 1998-2000
Action by: Agency, North Somerset Council	Contact: Team Leader Development Control
Action 9.1.2	Progress C
Negotiate appropriate tidal defence provision and adopt for maintenance when acceptable, in the Portishead Action Area.	This action has been completed. New tidal defences have been constructed and adopted for maintenance by the Agency.
Cost: Nil	Time scale: 1998-2000
Action by: Agency, North Somerset Council, Developer	Contact: Team Leader Development Control
Action 9.1.3	Progress S
Negotiate the provision of a strategic surface water disposal system for the Portishead Action Area.	A strategic surface water disposal system has been agreed in principle for Portishead. The detailed design and maintenance are to be agreed.
Cost: Unknown	Time scale: 1998-2000
Action by: Agency, North Somerset Council, Developer	Contact: Team Leader Development Control
Action 9.1.4	Progress S
Negotiate with interested parties an integrated strategy for linking land-use and coastal defence for the North Somerset Coast.	The Agency will continue to negotiate on this issue through input into the emerging Unitary Plan and through site specific development opportunities. This action will continue to be ongoing.
Cost: Unknown	Time scale: 1998-2002
Action by: Agency, North Somerset Council, Internal Drainage Boards	Contact: Team Leader Development Control

Action 9.1.5	Progress Since 1998
Negotiate with interested parties an integrated approach to developers on drainage issues in the North Somerset Council area.	The Agency have had an input into the Local Plan and will continue to input to the Town and Country Planning process on all issues relating to flood risk and drainage. Regular meetings are held between the Agency and North Somerset on planning and development issues.
Cost: Unknown	Time scale: 1998-2002
Action by: Agency, Water Companies, Internal Drainage Boards, North Somerset Council	Contact: Team Leader Development Control

Action 9.1.6	Progress Since 1998
Improve the environmental awareness of local councillors and developers (see also 5.1.6).	A programme of briefings / discussions with both council officers and councillors is planned.
Cost: £2k	Time scale: 2000-2001
Action by: Agency	Contact: Customer Services Manager

9.2. Soil Erosion

This is not a major problem within the catchment, but where it occurs it is usually due to arable fields left bare in periods of rainfall. We encourage farmers to follow the Ministry of Agriculture, Fisheries and Food (MAFF) Code of Good Agricultural Practice for the Protection of Soil (PB0617). MAFF have also produced a series of advisory booklets for the control of soil erosion. These include:

- MAFF Controlling Soil Erosion – An advisory booklet for the management of agricultural land (PB3280)
- Controlling soil erosion: an advisory leaflet for preventing erosion caused by grazing livestock in lowland England (PB4091)
- Controlling soil erosion: a field guide for an erosion risk assessment for farmers and consultants (PB4092)
- Controlling soil erosion: a manual for the assessment and management of agricultural land at risk of water erosion in lowland England (PB4093)

9.3. 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. This can sometimes lead to the closure of drinking water supplies, or to surface waters becoming eutrophic.

As required by the EU Nitrates Directive, the Government has designated Nitrate Vulnerable Zones (NVZs) to protect groundwaters and surface waters. The periodic review, which is carried out every four years, identified no Nitrate Vulnerable Zones in the catchment. Eutrophication problems within the area are principally caused by elevated phosphate concentrations in rivers, rather than by nitrates.

9.4. Contaminated and Derelict Land

The Agency will have specific duties under the Environment Act 1995 regarding contaminated land from April 2000.

Contaminated land is defined as any land which appears to a local authority to be in such a condition (because of the substances it contains) that water pollution or significant harm is being, or is likely to be caused. This interpretation is subject to guidance issued by the Secretary of State. Some sites may become designated as 'special sites', and these will become the responsibility of the Agency.

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

The precise nature of contaminated land in the catchment is not fully known. New statutory guidance will be implemented through the forthcoming Contaminated Land Regulations, which implement the contaminated land provisions of the Environmental Protection Act 1990. This will require local authorities to identify contaminated land within their area. The Environmental Health Department currently holds these records. Our work on the reporting on the state of contaminated land is yet to start. Once these sites have been identified, it will be necessary to decide if remedial work is required. Any contaminated land issues will be reported in future Annual Reviews.

9.5. Soil acidification

Some soils, particularly those which are naturally acidic such as granite-derived soils and peat soils, are vulnerable to increased acidity. This effect is made worse by high rainfall, typically in upland areas, and also by extensive conifer plantations. If rain combines with certain airborne pollutants it becomes much more acidic and accelerates the process of soil acidification. The main emissions responsible for acid deposition are sulphur dioxide and oxides of nitrogen.

In 1994, a protocol was agreed under the UN Economic Commission for Europe (UNECE) to reduce exceedences of critical loads (the rates of sulphur deposition which ecosystems and other targets can tolerate in the long term without suffering damage). The UK agreed to reduce its sulphur dioxide emissions by 80% from a 1980 baseline by 2010. The UK's sulphur strategy published in December 1996 *Reducing Emissions of Sulphur Dioxide, A Strategy for the United Kingdom* indicates that the UK will meet interim targets for 2000 and 2005. Compliance is also expected with the 80% reduction target for 2010. Critical load exceedences, however, will continue at some sensitive sites. In January 1997 the European Commission published a draft strategy on acidification which aims to further reduce critical load exceedences for both sulphur and nitrogen.

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

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 North 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 disposal 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.

The Government's current strategy for sustainable waste management in England and Wales is set out in the White Paper *Making Waste Work*. This was published in December 1995 and is currently being revised. The draft statutory strategy *A Way with Waste* was published in June 1999. The aim is to reduce the amount of waste going to landfill sites. Landfill will remain as a method of solid waste disposal for wastes that cannot be recovered and for the residue of some recovery methods such as incineration and energy recovery. Landfill tax, enforced by HM Customs and Excise, currently stands at £2 per tonne for inert waste, and £10 per tonne for all other wastes disposed of at landfill sites.

The North Somerset Rivers Catchment is largely coincident with the North Somerset Council area, which is currently going through the waste planning process. The Council's Waste Local Plan, for which we act as a statutory consultee, was put on Deposit during 1999.

The National Waste Production Survey was completed in 1999 and provided an excellent opportunity to advise companies on the new waste packaging regulations, together with waste, energy and raw materials minimisation. The results of the survey will be used in the production of a statutory National Waste Strategy.

We encourage industry and commerce to minimise waste and the use of natural resources through our support of the LO WEST Business Support Partnership with North Somerset Council, Bath & North East Somerset Council, Business Environment Association Bath and District, and Business Link West.

Action 10.1.1	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 nationwide. Data was collected from companies across a variety of industrial and commercial sectors on the amounts and types of wastes 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 10.1.2	Progress S
Use consultants to investigate the impact on Cold Bath Spring of Hartcliffe Rocks and Dial Quarry landfills, investigate other possible sources of pollution and produce an action plan. In 1998 prepare the contract for tenders.	We are currently seeking funding for the investigation of sources of contamination of the Cold Bath Spring. A variety of fieldwork was conducted over the summer of 1999 to narrow down potential sources. We are in the process of putting together a bid for Supplementary Credit Approval from central Government which, if successful, will fund investigation of the contamination.
Cost: £10.5k	Time scale: 1998-2000
Action by: Agency, Bristol Water, site owners, operators	Contact: Team Leader Environmental Protection
Action 10.1.3	Progress D
Implement the action plan for Cold Bath Spring.	Implementation of the action plan will depend upon progress in 20.1.2.
Cost: £30k	Time scale: 2000
Action by: Agency, site owners, operators	Contact: Team Leader Environmental Protection
Action 10.1.4	Progress N
The data collected by National Waste Production Survey will be used in the production of a Regional Strategic Waste Management Assessment, due to be published Summer 2000. The assessment will use the same boundaries as used by the Regional Planning Conference.	New action.
Cost: Unknown	Time scale: 2000
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 UK 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 expected to be implemented 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 EU legislation is not breached.

The Environment Agency is 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 17 sites (see Consultation Report, page 81, Table 16) in the catchment area which are currently registered under the Radioactive Substances Act. These sites are mainly manufacturing processes using sealed radioactive sources for industrial process control purposes.

There are 14 industry regulation actions set out in the Agency's *An Environmental Strategy for the Millennium and Beyond* (September 1997) which apply to the North Somerset Rivers catchment. We will:

- continue the efficient and effective delivery of Integrated Pollution Control;
- implement the requirements of the European Union (EU) 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;

- develop pollution prevention control tools including projects relating regulation to emission, efficiency and economic benefits (3 E's project);
- encourage the use by industry of BS 7750/ISO14001 accreditation;
- encourage registration under the European Union (EU) 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 that 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 EU Urban Waste Water Treatment Directive.

Actions to regulate major industry are included in Section 3 - Climate Change and Section 4 - Air Quality.

12. Appendices

12.1 Duties, powers and interests of the Agency

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

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
Water Resources The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.	<ul style="list-style-type: none"> • Grant or vary water abstraction and impoundment licences on application. • Revoke or vary existing licences to reinstate flows or levels to surface waters or groundwater which have become depleted as a result of abstraction, and are subject to a liability for compensation. 	<ul style="list-style-type: none"> • The more efficient use of water by water companies, developers, industry, agriculture and the public and the introduction of water efficiency measures and suitable design and layout of the infrastructure. • Protecting the water environment from any adverse impact due to proposed major developments. 	<ul style="list-style-type: none"> • The Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water. • We use our position as a statutory consultee to the planning authorities to secure conditions and agreements to protect the water environment. • We work closely with developers and industry to encourage the protection and good management of water resources.

Agency Duty	The Agency has powers to	The Agency has an interest (but no powers) in	Partnership
<p>Flood Defence The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.</p>	<ul style="list-style-type: none"> • Control, through Land Drainage consents, 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. 	<ul style="list-style-type: none"> • 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. • Installation of buffer zones which reduce flood risk and have significant environmental benefits. • Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance. 	<ul style="list-style-type: none"> • As a statutory consultee on planning applications within main river floodplains the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts 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.
<p>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.</p>	<ul style="list-style-type: none"> • Issue discharge consents to control pollution loads in controlled waters. • Regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharge consents. • Issue 'works notices' where action is required to reduce the risk of pollution. • Prosecute polluters and recover the costs of clean-up operations. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The Agency will liaise with local authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source control measures. As a statutory consultee on planning applications, the Agency will advise local planning authorities on the water quality impact of proposed developments.

Agency/Duty	The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
<p>Air Quality The Agency has a duty to implement Part 1 of the Environment Protection Act 1990.</p>	<ul style="list-style-type: none"> • Regulate the largest technically complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, 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. 	<ul style="list-style-type: none"> • The vast number of smaller industrial processes which are controlled by local authorities. • Control over vehicular emissions and transport planning. 	<ul style="list-style-type: none"> • The Agency provides data on 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.
<p>Radioactive Substances The Agency has a duty under the Radioactive Substances Act 1993 to regulate the use of radioactive materials and the disposal of radioactive waste.</p>	<ul style="list-style-type: none"> • Issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public. 	<ul style="list-style-type: none"> • The health effects of radiation. 	<ul style="list-style-type: none"> • The Agency will work with users of the radioactive materials to ensure that radioactive wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with 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
<p>Waste Management The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities.</p>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The Agency will work with waste producers, the waste management industry and local authorities to reduce the amount of waste produced, increase re-use and recycling and improve standards of disposal.
<p>Contaminated Land The Agency has a duty to develop an integrated approach to the prevention and control of land contamination, ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.</p>	<ul style="list-style-type: none"> • Regulate the remediation of contaminated land designated as special sites. • Prevent future land contamination by means of its Integrated Pollution Control, Water Quality and other statutory powers. • Report on the state of contaminated land. 	<ul style="list-style-type: none"> • Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land. 	<ul style="list-style-type: none"> • The Agency supports land remediation and will promote this with developers, local authorities and other stakeholders.
<p>Conservation The Agency will further conservation, wherever possible, when carrying out water management functions; have regard to conservation when carrying out pollution control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.</p>	<ul style="list-style-type: none"> • The Agency has no direct conservation powers but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation. 	<ul style="list-style-type: none"> • The conservation impacts of new development, controlled by local planning authorities. • Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to local authorities and developers to protect the integrity of such sites or species. • Implementation of the UK Biodiversity Action Plan for which it is the contact point for over 40 species and 4 habitats. 	<ul style="list-style-type: none"> • The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. • Many development schemes have significant implications for conservation. The Agency will work with developers, local authorities, conservation bodies and landowners to conserve and enhance biodiversity.

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.	<ul style="list-style-type: none"> • Further the conservation and enhancement of natural beauty when exercising its water management powers and have regard to the landscape in exercising its pollution control powers. 	<ul style="list-style-type: none"> • The landscape impact of new development, particularly within river corridors, controlled by local planning authorities. 	<ul style="list-style-type: none"> • The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with local authorities and developers to conserve and enhance diverse river landscapes.
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.	<ul style="list-style-type: none"> • Promote its archaeological objectives through the exercise of its water management and pollution control powers and duties. 	<ul style="list-style-type: none"> • Direct protection or management of sites of archaeological or heritage interest, carried out by local planning authorities, County Archaeologists and English Heritage. 	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • Regulate fisheries by a system of licensing. • Make and enforce fisheries byelaws to prevent illegal fishing. • Promote the free passage of fish and consent fish passes. • Monitor fisheries and enforce measures to prevent fish entrainment in abstractions. • Promote its fisheries duty by means of land drainage consents, water abstraction applications and discharge applications. 	<ul style="list-style-type: none"> • The determination of planning applications which could affect fisheries. 	<ul style="list-style-type: none"> • Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries.

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.	<ul style="list-style-type: none"> The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management. 	<ul style="list-style-type: none"> Promotion of water sports, carried out by the Sports Council and other sports bodies. 	<ul style="list-style-type: none"> The Agency will work with the Countryside Commission, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment.

12.2. General Quality Assessment Classification

The General Quality Assessment Scheme (GQA) 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 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.

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 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 area 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 Classification and River Quality Objectives Compliance for North Somerset 1998

River Name	Public Stretch Name	Public Stretch Top NGR	Public Stretch Bottom NGR	Highest Quality RQO	Compliance
BANWELL	Banwell-M5	ST39805890	ST37906280	4	DO(5,4)-Marginal Fail
BANWELL	M5-Sea	ST37906280	ST35306610	4	DO(5,4)-Marginal Fail
CONGRESBURY YEO	Blagdon Lake-Perry Bridge	ST50406010	ST48006160	2	Pass
CONGRESBURY YEO	Perry Bridge-Wrington	ST48006160	ST46306240	2	Pass
CONGRESBURY YEO	Wrington-Congresbury	ST46306240	ST43906380	2	Pass
CONGRESBURY YEO	Congresbury-M5	ST43906380	ST39006500	3	Pass
CONGRESBURY YEO	M5-Icelton (estuary)	ST39006500	ST38306580	2	Pass
KENN	Source-Sea	ST48907110	ST38406860	4	Pass
NEW BLIND YEO	Cut From Kenn-Clevedon	ST43406980	ST41207000	4	Pass
NEW BLIND YEO	Clevedon-Sea	ST41207000	ST39207020	4	Pass
LAND YEO	Source-Clevedon	ST53606760	ST41807120	2	DO(3,2)-Marginal Fail
LAND YEO	Clevedon-Sea	ST41807120	ST39207020	5	Pass
PORTBURY DITCH	Source-Middle Bridge	ST42007250	ST47407550	4	DO(5,5)-Significant Fail
PORTBURY DITCH	Middle Bridge-Sea	ST47407550	ST47507740	4	DO(5,4)-Marginal Fail

MANAGEMENT AND CONTACTS:

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

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

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

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

0645 333 111

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

ENVIRONMENT AGENCY EMERGENCY HOTLINE

0800 80 70 60

For general information about flooding.
BECAUSE FLOODS DON'T JUST
HAPPEN TO OTHER PEOPLE

ENVIRONMENT AGENCY FLOODLINE

0845 988 1188



**ENVIRONMENT
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