ENVIRONMENT AGENCY

FIRST ANNUAL REVIEW

OF THE

LOWER BRISTOL AVON

CATCHMENT MANAGEMENT PLAN

(1997)

EA - South West LEAPs/104
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LOWER BRISTOL AVON CATCHMENT MANAGEMENT PLAN
FIRST ANNUAL REVIEW: APRIL 1996 TO MARCH 1997
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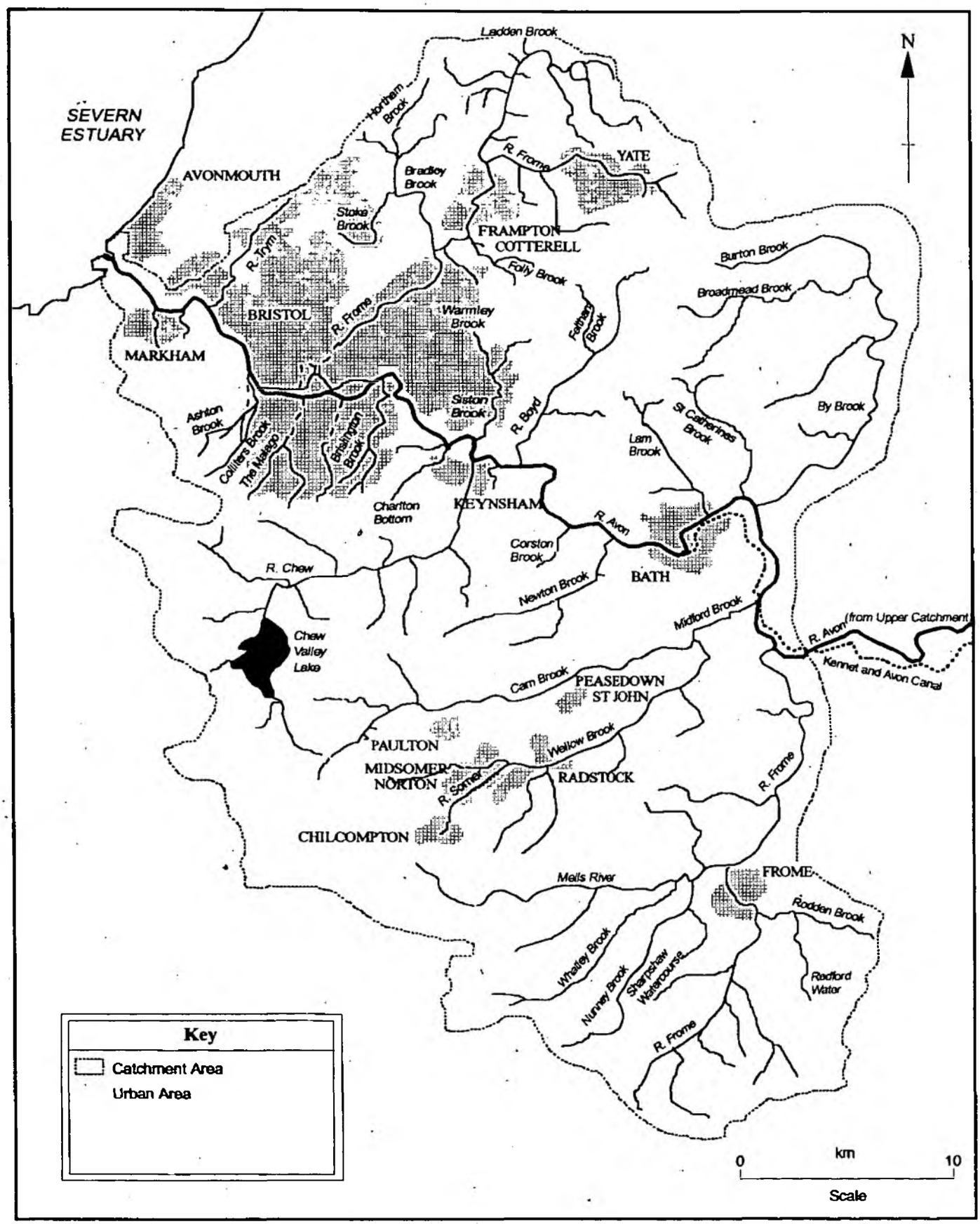
The Lower Bristol Avon Catchment



1. INTRODUCTION

This is the First Annual Review of the Lower Bristol Action Plan which was published in March 1996. It introduces the Environment Agency, summarizes progress made with Actions and introduces several new Actions. Information relating to this catchment may be found in the:

- Lower Bristol Avon Catchment Management Plan Consultation Report - March 1995
- Lower Bristol Avon Catchment Management Plan Action Plan - March 1996

1.1 Environment Agency

The Environment Agency was formed on 1 April 1996 by bringing together Her Majesty's Inspectorate of Pollution (HMIP), the National Rivers Authority (NRA), the Waste Regulation Authorities (WRAs) and some units of the Department of the Environment (DoE) dealing with the technical aspects of waste and contaminated land.

Our Vision is :

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

We will :

- *protect and improve the environment as a whole by effective regulation, by our own actions and by working with and influencing others*
- *operate and consult widely*
- *value our employees*
- *be efficient and businesslike in everything we do*

Our Aims are :

- *to achieve significant and continuous improvement in the quality of air, land and water, actively encouraging the conservation of natural resources, flora and fauna*
- *to maximise the benefits of integrated pollution control and integrated river basin management*
- *to provide effective defence for people and property against flooding from rivers and the sea*
- *to provide adequate arrangements for flood forecasting and warning*
- *to achieve significant reductions in waste through minimisation, re-use and recycling and to improve standards of disposal*
- *to manage water resources to achieve the proper balance between the needs of the environment and those of abstractors and other water users*
- *to secure, with others, the remediation of contaminated land*
- *to improve and develop salmon and freshwater fisheries*
- *to conserve and enhance inland and coastal waters and their use for recreation*
- *to maintain and improve non-marine navigation*
- *to develop a better informed public through open debate, the provision of soundly based information and rigorous research*
- *to set priorities and propose solutions that do not impose excessive costs on society*

We do not cover all aspects of environmental legislation and service to the general public. Your local authority deals with all noise problems; litter; air pollution arising from vehicles, household areas, small businesses and small industries; planning permission (they will contact us when necessary); contaminated land issues (in liaison with ourselves); and environmental health issues.

1.2 The Environment Agency and Catchment Management Planning

Catchment Management Plans (CMPs) produced by the NRA will continue to be called CMPs, and subsequent reviews will focus mainly on water related issues. Section 5 gives a brief overview of our responsibilities relating to Integrated Pollution Control (IPC), Radioactive Substances (RAS) waste management and air quality. Any actions previously attributed to the NRA have now been taken over by the Environment Agency. New plans published after 1 April 1996 will be known as Local Environment Agency

Plans (LEAPs) and these will take account of all our responsibilities. All CMPs will be replaced by LEAPs by December 1999.

2. PURPOSE OF THE ANNUAL REVIEW

An important part of the CMP process is to monitor the Action Plan to ensure that targets and actions are achieved and that the plan continues to address relevant and significant issues within the catchment. This report summarizes the progress made since the publication of the Action Plan in 1996.

3. SUMMARY OF PROGRESS

3.1 Flood Defence

Since 1 September 1996 we have taken over the lead role from the Police in passing flood warnings to people who are at risk, so that they can take action to protect themselves and their properties. Where there is a known risk that flooding could occur from the main rivers flood warnings will be issued for the area affected.

A leaflet, *Flood Warning for the Lower Bristol Avon catchment* is now available from our offices. The stretches and locations of river for which flood warnings will be issued are listed, along with the types of warnings issued.

These warnings are issued to the Police, local authorities, and directly to those at risk via a recorded telephone message. Flood warnings will also be broadcast by most local radio stations, and information on the general situation will be available on Teletext. Additionally our Floodcall telephone service (0645881188) provides regular updated information on flood warnings in force across England and Wales.

Flood warning is not an exact science. We use the best information available to predict the possibility of flooding, but no warning system can cover every eventuality. It is the responsibility of those who live in flood prone areas to be aware of any risk and to know what action they should take to protect themselves if flooding occurs. Warnings are issued for flooding from most major rivers. There are other types of flooding for which a warning service cannot be provided, for example road flooding caused by blocked drains or groundwater.

Over the next five years we will be improving the warning service so that more information reaches those who need it.

Emergency works to replace the cracked tide flap on the Ashton Vale Flood Alleviation tunnel have ensured the continuing protection of that area against most flood events. Tidal defences have been completed at Pill, and the electronic controls of the Markham Brook pumping station are being completed prior to imminent commissioning of the station.

3.2 Development

The Agency is represented on various officer groups and working parties of the Regional Planning Conference which is formulating the advice to be given by Conference to Government for a revision to the Regional Planning Guidance for the South West Region.

The Agency is currently liaising on the Replacement Joint Structure Plan encompassing the Unitary Authorities that used to make up the former County of Avon to ensure the Plan takes account of the Agency's interests and encourages sustainability. We have recently contributed to the Bristol City Local Plan Modifications and preparations for the Draft South Gloucestershire Local Plan. The Agency also commented on the Gloucestershire Waste Management Strategy Consultation Report.

Negotiations have continued with developers at Emersons Green and Catbrain to ensure the phased developments conform with previously agreed plans to protect against increased flood risk.

Pilot Section 105 plans showing indicative flood risk areas in the Lower Bristol Avon catchment were handed over to local planning authorities undertaking their Local Plan Review. The Pilots are to be reformatted to the agreed corporate standard in 1997 and formally handed over to the local planning authorities once completed.

3.3 Recreation

Congratulations to the Kennet & Avon Canal Partnership which was successful with its application for funds to the Heritage Lottery Fund. The Partnership has been awarded £25m, which will fund a major programme of works on the Kennet & Avon Canal over the next 5 years. These works will include lock gate replacements, repairs and improvements to water control structures - sluices and weirs; canal lining works to reduce leakage; embankment repairs and landscaping improvements. The Canal's back pumping arrangements are in place at Seend, Semington, Bradford-on-Avon and Devizes. Outstanding work remains at Wootton Rivers and at Bath. This work will be funded from the Lottery allocation.

3.4 Water Quality

A broad spectrum of problems may cause poor stretches of water quality within the Lower Bristol Avon catchment. In some cases the reason for failure of Water Quality Objectives can be predicted with a reasonable degree of confidence and action can be implemented to address that problem without any investigative work.

A good example is the Newton/Conygre Brook subcatchment where the overriding influence on the catchment water quality is likely to be agriculture, hence the early completion of a programme of farm visits in this subcatchment.

In other subcatchments the reasons for failed objectives may be disparate and/or complex, necessitating investigative work before actions can be formulated to address the problem. The Wellow Brook subcatchment (including the Rivers Cam and Somer and the Kilmersdon Stream and Snails Brook) is such a catchment. A Wellow Brook Action Team has therefore been convened within the Agency to coordinate the efforts of Investigations staff, Biologists and Water Quality Pollution control officers. This should result in the causes of poor water quality being clearly identified, leading to well targeted actions.

We monitor 369.7 km of rivers in the Lower Bristol Avon catchment. In 1995, 54.8% of monitored river lengths in the catchment were of good or very good chemical quality, 38.2% were fairly good while 7% were either fair or poor. In biological terms 83.9% of the monitored river lengths were of good or very good quality, 15.9% were of fair quality while the remaining 0.2% were of poor quality. Between 1990 and 1995 there was an overall improvement in chemical quality over 0.3% of the monitored network while biological quality improved by 7.2%. Although water quality has recently improved there are parts of the catchment where it is not good enough. These shortfalls in quality are described in this report.

The 1996 routine water quality monitoring data has identified stretches of watercourse which failed to meet the standards required for the proposed RQOs. These stretches are listed in the action tables Section 6, we will continue to investigate the causes for these failures in water quality and implement plans to secure compliance.

3.5 Conservation

We have continued to develop and implement collaborative river restoration plans for the Bristol Frome and Somerset Frome (Frome Town Centre), and are supporting the work of the Cotswolds and By Brook Countryside Management Project (WWT). Our biodiversity conservation work continues to revolve around enhancement opportunities related to developments and local initiatives, and to gathering information on water voles and alien species within the catchment. We have become aware that a high proportion of riverside alders between Bristol and Bath have been infected with Phytophthora (a fungal disease) and are seeking help to establish the extent of the problem.

3.6 Water Resources

The short trials of changes to stream augmentation and voluntary restrictions on abstraction quantities by Wessex Water and Bristol Water in the Upper Avon were well received by the Agency's public liaison contacts in 1996 and will be continued and extended in 1997. There is cause to believe that improvements there can be implemented with some small measure of improvement to conditions in the Lower Avon but these are not critical to the continued assurance of residual flow criteria in the Lower Avon.

Of greater relevance to the Lower Avon would be the aspirations of water supply companies for providing for future water supply demands from increased abstractions from the lower reaches. If the options for meeting future forecast demands, over and above savings from effective demand management, include a consideration for the Lower Avon as a potential new resource then it will be expected that a clear development of this argument will be contained in their water resources plans to be considered within the 1999 review of the Agency's water resources development strategy which will consider long term water resource needs.

4. ACTION PLAN MONITORING REPORT

The Action Plan is the means by which the vision of the catchment is turned into reality, and outlines detailed proposals for resolving the Issues identified. The following tables update the progress with each Issue identified in the Lower Bristol Avon Action for the period 1 April 1996 to 31 March 1997.

	Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
1	Development pressure in the catchment								
1.1	Liaise with the local planning authorities to ensure that appropriate policies are included in Development Plans	Agency LPAs	£10k p.a.	£10k	•				The Environment Agency are in discussions with LPAs to ensure Local Plans contain environmentally sustainable policies. Large Developments The Agency is working in close partnership with LPAs and developers to ensure large developments in the catchment are environmentally neutral or contribute to enhancing some of the areas degraded watercourses
1.2	Liaise with planning and highways authorities, consultants and contractors to ensure protection for the water environment before, during and after construction of road schemes	Agency LAs HAs	£6k p.a.	£6k	•	•	•	•	As above
2	Eutrophication								
2.1	Nutrient enrichment studies - collect chemical and biological data for the Lower Bristol Avon (LBA)	Agency	£32k	£32K					A proposal to designate part of the Lower Bristol Avon as a Sensitive Area (Eutrophic) Status has been submitted to Head Office and approved for consideration by the DoE. *Action completed, no further reporting in future plans*
2.2	Assess relative contribution of inputs from all sources	Agency WWSL	U	•					See above
2.3	Develop a National Strategy for the control of eutrophication	Agency	£50k	£50k					Document is still in draft format and is due to be submitted to DoE prior to wider consultation
2.4	Implement the National Strategy within the LBA Catchment	Agency	U		•	•			This cannot be implemented until the National Strategy has been published
3	Pollution from farms and farm land affecting water quality								
3.1	Identify farms causing pollution and ensure steps are taken to eliminate the polluting discharges especially on the:	Agency Farmers							
	Nunney Brook		£2k p.a.	£2k	•	•	•	•	During January 1997 the Agency successfully prosecuted a farming partnership for an incident which occurred in 1996. The farm was identified as a major contributor to poor water quality in the Nunney Brook. Further farm visits planned for 1997
	Ladden Brook	Agency Farmers	£7k p.a.	Nil	•	•			No progress
	River Chew	Agency Farmers	£3k p.a.	£2.8k	£0.6k				Approximately 50 visits have been made to farms upstream of Chew Valley Lake. These were mostly first visit risk assessments but some valuable follow up visits have also been made to pursue improvements. Some follow up work will be necessary in 1997

	Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
3.2	Investigate the causes of non-compliance with RQOs and where farms are contributing identify farms causing pollution and ensure steps are taken to eliminate the polluting discharges on:	Agency							
	Wellow Brook	Agency	£3k p.a.	£1k	•	•			Six farms have been visited at the head of the River Somer where there are particular problems. Background investigative work is ongoing to identify further areas for action
	Cam Brook	Agency	£2k p.a.	£0.4k	•				No specific actions. Investigative work ongoing to identify further areas for action
	Snails Brook	Agency	£2k p.a.	£0.4k	•				As above
	Leigh-on-Mendip Watercourse	Agency	£2k p.a.		•				Farm visits planned for 1997
	Somerset Frome	Agency	£4k p.a.	£0.7k	•	•			Ten farms have been visited in the upper catchment
3.3	Continue to investigate sources of pesticide inputs to river	Agency Pesticide users	£5k p.a.	£1k	£1k	•	•	•	Investigations were carried out in 1996 in relation to reportedly slightly elevated levels of Isoproturon in the River Chew catchment. Further investigations planned for 1997
4	Impact of urbanization on water quality								
4.1	Work with planning authorities to ensure that adequate silt and oil traps are fitted on highway and industrial trading estate drainage	Agency Planning Auths		£0.5k	•	•	•	•	Working party formed with South Glos (best management practices adopted as sustainable development for urban development). Target sites identified
4.2	Target trading estates and industrial areas with pollution prevention visits or roadshows, followed up by enforcement activity where necessary (Yate, South Bristol, Norton/Radstock)	Agency	£19.2 p.a.	£1.5	•	•	•	•	Trading Estates in the Yate area were targeted as part of the Bristol Frome Action Plan. Incidents on Trading Estates in the Brislington, Hengrove, Warmley and Radstock areas have been used as opportunities to upgrade pollution prevention at sites. Three important factory sites adjacent to the river in the Frome (Somerset) area receive regular pollution prevention visits, as do sites at Welton, Radstock and Paulton. The Pucklechurch Trading Estate will receive visits in 1997
4.3	Implement Bristol Frome Action Plan	Agency LAs Riparian owners							As above
4.4	Liaise with the Waste Regulation Authorities to ensure that traders are complying with the Environmental Protection Act, Environmental Protection (Duty of Care) Regulations 1991	Agency			•	•	•		Ongoing. Waste Regulation Authority now part of the Environment Agency. *Action completed - no further reporting in future plans*

	Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
4.5	Review the future funding of 'Operation Streamclean' which was started in 1992 in collaboration with Bristol City Council and Wessex Water Services Ltd. This targets wrong connections and sewerage faults	Agency Bristol City Council WWSL	£46k p.a.	£46k					Funding has been secured until March 1998
4.6	Liaise with and encourage local action groups e.g. Agenda 21 Environmental Forum Groups	Agency	£3k p.a.	£3k	•	•	•	•	We are represented on the BEET (Bristol Environment and Energy Trust) and have been working with COGB (Communities Organised for a Greater Bristol)
5	Unsewered areas and sewerage infrastructure								
5.1	Unsewered area, in particular Chewton Mendip/Litton - Agency to encourage local communities, district councils, water companies and OFWAT to seek solutions	Agency Individuals LAs OFWAT WWSL	£12k p.a.	£12k	•	•	•	•	Wessex Water are currently assessing cost/benefits of a first time sewerage scheme for Litton/Chewton Mendip
5.2	Condition of sewerage infrastructure/combined sewer overflows (CSO)- Agency and Wessex Water Services Ltd to continue to consult over the timetabling of Drainage Area Plan (DAP) work to resolve the situation	Agency WWSL	£12k p.a.	£12k	•	•	•	•	DAP discussion and identification of priorities for CSO improvements generally are ongoing. During 1996 there have been CSO improvements completed within the Trym and Brislington Catchments within Bristol
5.3	Problems have been identified at Bath, Yate, Bristol, and on the Wellow Brook. Some CSOs have been improved in these areas and other schemes are on-going. Agency to continue liaison with WWSL to identify and prioritize CSOs requiring improvement	Agency WWSL	£30k p.a.	£30k	•	•	•	•	Phase 1 of Bath CSO improvements is largely completed, with four further phases scheduled over the next two years, at an estimated cost of £4.8m. Discussions are presently ongoing with Wessex Water regarding priorities for improvement
5.4	Problem of offensive sewage debris resulting from sewerage system overflow. Promote sewage debris reduction measures such as the 'Bag It and Bin It' campaign	Agency WWSL	U						We continue to meet with river user groups to review progress on reducing sewage debris downstream of Bath

	Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
6	Site specific water quality issues - Non-compliance with River Quality Objectives in the following stretches. Investigate the causes and formulate action plans to remedy the problems								
6.1	Priston Stream - Northfield to confluence with Conygre Brook. Recent impoundment upstream of monitoring point reducing dilution - Agency to investigate	Agency Landowners Farmers WWSL	£2k p.a.	£2k	•				Causes have not been pinpointed. The latest GQA Biology Survey indicates an improvement
6.2	Newton Brook - Confluence with Conygre Brook to Englishcombe, Englishcombe to confluence with the Avon	As above	£2k p.a.	£2k					All active farms in Newton Brook/Conygre Brook catchment visited in 1995/96 plus follow up visits where necessary. *Action completed no further reporting in future plans required*
6.3	Doncombe Brook - Upstream Marshfield STW to downstream STW. Sampling point relocated to avoid mixing zone from Marshfield STW	As above							No action other than relocation of sampling point. *Action completed no further reporting in future plans required*
6.4	Wellow Brook - Foxcote to Longbarrow, Longbarrow to Wellow, Wellow to confluence with Lyde Brook, Lyde Brook to confluence with Midford Brook. See Issue 3.	As above	£6k (total)	£1k	•				Investigative work is underway and is being coordinated by a Wellow/Midford Brook Action Team convened within the Agency. Possible causes of poor water quality under investigation include industrial discharges, urban runoff, Radstock STW and farms
6.5	Winford Brook - Winford to Littleton, Littleton to confluence with the Chew	As above	£2k p.a.		•				No specific action to date
6.6	River Chew - Litton to upstream Sherbourne Lake, upstream Sherbourne Lake to downstream Sherbourne Lake, downstream Sherbourne Lake to upstream Chew Valley Lake	As above	£2k p.a.	£2.8k	£0.6k				See Issue 3.1 River Chew
6.7	Leigh-on-Mendip watercourse - Tadhill to Halecombe Quarry.	As above	£2k total		•				See Issue 3
6.8	Whatley Brook - Cranmore to Leighton, Leighton to Asham Wood	As above	£2k p.a.	Nil	•				No specific action in current plans. Farm visits in 1997/98
6.9	Nunney Brook - Wanstrow to Cloford, Cloford to Holwell, Holwell to Southfield House, Southfield House to confluence with Mells River.	As above	£2k total	£2k	•	•	•	•	See Issue 3

	Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
6.10	Somerset Frome - Innox Hill to confluence with Mells River. Improvements to Frome STW have been made by WWSL. River reach is impacted by urban runoff	As above	£2k p.a.	£1k	•				Pollution prevention work at an industrial site 1 km upstream and investigation of effect of Frome STW (ongoing)
6.11	Bristol Frome - Yate to Algars Manor, confluence with Ladden Brook to confluence with Bradley Brook. Failure was partly due to sewerage problems which are being remedied by construction of the Frome Valley Relief Sewer by WWSL. Agency to investigate other causes of water problems, such as runoff from trading estates	As above	£11.2k total		•	•	•	•	Phases I, II and IV of Frome Valley relief sewer have been constructed. Phase III will only be constructed in response to future development in the area.
6.12	Ladden Brook - Bagstone to Sheephouse Farm, Sheephouse Farm to confluence with Bristol Frome. See Issue 3	As above	£7k total		•				See Issue 3
6.13	Exceedence of the hydrocarbon standards of the EC Surface Water Abstraction Directive at Chew Valley Lake and Barrow Reservoir. Following guidance from the DoE, if necessary investigate the reason(s) for the exceedences and then take action where possible	Agency DoE							We are discussing with the DoE the establishment of more appropriate analytical methods. Investigative sampling found no hydrocarbons in the watercourses feeding Chew Valley Lake. This suggests that the exceedence of hydrocarbon standards is not due to polluting inputs
6.14	Exceedence of EQS for copper near South Pier at the mouth of the Bristol Avon. Significant loads of copper at Keynsham on the Avon. Investigate and assess possible action as part of the Annex 1A load reduction programme, in the light of guidance from DoE	Agency DoE Metal dischs.							Concentrations of copper at South Pier last exceeded the EQS limit in 1992. Concentrations of copper throughout the whole Severn Estuary fluctuates around the EQS limit and this issue is not isolated to this site or specifically connected with discharges to the Bristol Avon catchment. The more widespread issue of compliance with the EQS limit in the whole Severn Estuary has been raised in the Severn Estuary LEAP and actions for resolution will appear in that document
	NEW - Significant non-compliance with RQOs in the following stretches:								
6.15	Leigh on Mendip Watercourse - Tadhill - Halecombe Quarry								We will continue to investigate the cause for the failure and implement plans to secure compliance
6.16	Piston Stream - Northfield - Confluence with Conygre Brook								As above
	NEW - Marginal non-compliance with RQOs in the following stretches:								
6.17	Somerset Frome - West Barn Farms - Tytherington								As above

	Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
6.18	Whatley Brook - Cranmore - Asham Wood								As above
6.19	Nunney Brook - Wanstrow - Confluence with Mells Brook								As above
6.20	Wellow Brook - Foxecote - Confluence with Midford Brook								As above
6.21	By Brook - Box Brook - Confluence with Avon								As above
6.22	Broadmead brook - West Kington - Confluence with By Brook								As above
6.23	Doncombe Brook - Downstream Marshfield STW - Confluence with By Brook								As above
6.24	Conygre Brook - Farmborough - Upstream Castle Farm								As above
6.25	Feltham Brook - St Aldams Ash Farm - Confluence with Boyd								As above
6.26	Boyd - The Green - Golden Valley								As above
6.27	Bristol Frome - Yate - Confluence with Ladden Brook								As above
	NEW - Non-compliance with long term RQOs in the following stretches:								
6.28	Somerset Frome - West Barn Farms - Tytherington								As above
6.29	Wellow Brook - Confluence with Somer - Tyning								As above
6.30	Somerset Frome - Lullington - Confluence with Avon								As above
6.31	Wellow Brook - Welton - Confluence with Somer								As above
7	Impacts of quarrying on water resources								
7.1	Investigate the cause of non-compliance and take action to resolve the problems if possible	Agency Dischs.	£1k p.a.	£1	•				No known problems with water quality of groundwater. Surface water discharges monitored and action taken where necessary. The Agency continues to participate in the Mendip Quarries Environmental Monitoring Group
7.2	The threat to the Brinsham Stream. Oppose plans to remove the stream bed by quarrying and press for a tunnel under the stream bed to join the adjacent sites	Agency	U						No known plans to remove the Brinsham Stream bed are currently under consideration
7.3	Continue monitoring the Bath Hot Spring and water levels in the Mendips and other limestone aquifers	SCC LAs Agency Quarry prods	£25k p.a.	£25	•	•	•	•	Monitoring at Bath Hot Springs continues. No changes in thermal yield have been detected. Mutual benefit has been derived from the forging of a much closer working relationship with B&NES. A project has been set up to investigate our future monitoring strategy at the Baths. The groundwater monitoring network has not shown up any anomalous trends. Attempts to rehabilitate some malfunctioning boreholes have been only partially successful. Further action may be required
8	Protecting groundwater in the catchment								
8.1	Implement Agency policy for the protection of groundwater (PPPG)	Agency		•	•	•	•	•	Part of our routine work. *Action completed, no further reporting in future plans*
8.2	Work with farmers on the Mendips to encourage them to produce waste management plans	Agency	£6k p.a.	£1k	•	•	•	•	Recent farm visits in the Upper Chew Catchment will benefit both surface and groundwater protection (see Issue 3)

	Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
8.3	Encourage farmers to avoid intensively farming free-range pigs within source protection areas by education, and participation in relevant organizations	Agency MAFF FWAG Mendip Env. Forum	£4k p.a.	£4k	•	•	•	•	A research proposal from the University of the West of England, with support from the Agency and Bristol Water, to examine the effects of land use change on water quality in the Mendips was submitted to the National Education Research Council (NERC) in autumn 1996, but failed to secure NERC backing. MAFF commissioned research, investigating nitrate leaching from outdoor pigs, is due to be completed in 1997
8.4	Combe Down mine stabilization infill. Continue to liaise re proposals for stabilization of mines. Assess environmental impact statement and, as statutory consultee, comment on planning application. Monitor baseline water quality. Monitor water quality after any infilling takes place.	Bath CC Agency WWSL	U		•	•			No progress. B&NES Council is awaiting final reports from the Consultants before deciding what course of action to take
9	Impacts of abstraction on river flows								
9.1	Increased water abstraction for public water supply. Seek resolution to the problems associated with groundwater abstraction in the Upper Bristol Avon catchment, in conjunction with Wessex Water Services Ltd and Bristol Water (See also UBA Action Plan)	Agency WWSL Bristol Water	U		•	•	•	•	Trial improvements have been introduced in the Upper Bristol Avon with general public appreciation of the results. Longer trials are programmed for 1997 together with computer studies to assess their long term sustainability
9.2	Continue liaison on the need for and timing of a detailed investigation of a pumped storage scheme for Chew Valley Lake	Agency	U		•	•	•	•	The need for such a scheme (which would involve an abstraction from the River Avon) has not been brought to the attention of the Agency by Bristol Water. If it remains a genuine option for the Company its future would be expected to be discussed within the Company's Water Resources Plan to be prepared by 1999
9.3	Promote and implement appropriate demand management and leakage control policies	Agency WWSL Bristol Water	U		•	•	•	•	This is an ongoing process and there are encouraging signs that water companies are now paying greater attention to its necessary prominence. Due emphasis on it will be expected in the review of company Water Resources Plan to be completed in 1999. This is routine work; the Agency is currently initiating regular meetings to discuss these issues with the water companies. *Action deleted no further reporting in future plans*
9.4	Evaluate the potential for increasing the authorized abstraction from the Avon at Newton Meadows	Agency WWSL	U						A review of this option for future resource development has been progressed. The issue may be revisited in the review of the Water Resources Plan preparation for 1999
9.5	Assess benefit of low flow alleviation	Agency							We did not intend to assess benefits of UBA remedies to the LBA - not expected to make a significant, measurable difference. *Action deleted, no further reporting in future plans*
9.6	Improve the condition of the Long Pound to reduce leakage	BW			•	•	•		The Heritage Lottery Fund announced on 31 October 1996 that the Kennet & Avon Canal would receive £25 million over the next 6 years to help fund a £29 million project of major civil engineering works to safeguard the Canal, its historic structures and environment for the future

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9.7	Extend the back pumping arrangements to source the Long Pound from Claverton, near Bath	BW Agency							The back pumping system became fully operational on 1 August 1996 enabling BW to operate the flight each day of the week
9.8	The impact of perceived low flows in the St Catherines Brook. Evaluate the Phase 1 findings of the WWSL Report and consider further action	WWSL Agency	U	Nil					Phase 1 results have been collated, and will be evaluated in conjunction with conservation staff
9.9	**NEW** - The public concern over perceived low flows in the By Brook catchment	Agency	£6k		£6k				The Agency will undertake a preliminary study with the cooperation of the Friends of the By Brook to define the nature of the problem and to make recommendations for further action as necessary. The Project aims to produce a By Brook Position Statement by the end of 1997
10	Improving flood defences								
10.1	Introduce a national integrated Flood Defence Management System	Agency	U						Hardware/software and training to be introduced to Area early 1997. Levels of Service target complete. Assets Survey December 1997
10.2	Undertake surveys to support flood risk advice to local planning authorities	Agency Planning Auths	£45k p.a.	£45k	•				The Agency is currently undertaking indicative floodplain identification studies of all 'main rivers' within the Region. See Section 3.2 Development
11	River restoration and channel management								
11.1	Together with our partners, continue work on the Bristol Frome Action Plan	See Action Plan	U	£5k	•	•	•	•	Phase 1 of the Ladden Brook study has been produced and further funding is available for Phase 2. Steering Group to meet to discuss progress, future priorities and funding (to include Wildlife Trust)
11.2	Study the findings of the Agency Wetlands R&D Project and where appropriate implement in the catchment	Agency	U		•	•	•	•	Incorporated into core work. *Action completed, no further reporting in future plans*
11.3	Distribute riparian owners guidance notes	Agency Parish Councils Civic trusts NFU	£1k		£1k				Leaflet complete. Distribution progressing 1997/98
11.4	Work with local planning authorities and others to produce enhancement schemes where opportunities arise	LPAs Agency Civic trusts Wildlife trusts Riparian owners	£5k p.a.	£5k	•	•	•	•	The Agency has an ongoing brief as part of its role as 'advisors to the LPAs' on development and flood risk to incorporate affected watercourses within new development in an environmentally enhanced, and sustainable format
11.5	Work with MAFF to enable grant-aided schemes such as Countryside Stewardship and Water Fringe Options to be used to develop buffer strips	MAFF Agency Farmers Riparian owners	£7.5k p.a.	£7.5k	•	•	•	•	Difficulties in implementation due to lack of resources. Water Fringe option not available in catchment

Issues and Actions	By	Cost	96	97	98	99	00	Progress Year One
11.6 With partners, produce an Action Plan for the Somerset Frome	Agency LPA Riparian owners Comm. Groups	U	£5k	•				The aim is to enhance the environmental landscape and recreational value of the river within any redevelopment proposals. An Action Plan has been produced for the Somerset Frome for collaborative implementation as opportunities and resources allow
12 Conserving river and wetland wildlife								
12.1 Carry out desk studies of survey data on rare or threatened species	Agency	£5k p.a.	Nil	•	•			To be undertaken 1997/98
12.2 Set biodiversity targets	EN Agency County Wildlife Trusts LAs	£5k p.a.	£5k	•				Contributing to regional and local Biodiversity Action Plans
12.3 Complete River Corridor Survey of catchment and produce a map of alien species. Give advice on control measures to riparian owners and interest groups	Agency	£2.5k p.a.		•	•			Study the distribution of alien plant species (principally Japanese Knotweed, Himalayan Balsam, Giant Hogweed) and consider whether control is feasible. To be undertaken in 1997, control measures 1998
12.4 Develop safe overland routes between catchments for otters	Agency Wildlife Trust	£2.5k p.a.	Nil	•	•			To be undertaken in 1997
13 Litter								
13.1 Develop and implement strategy for dealing with litter on Agency owned land and property	Agency							
13.2 Identify worst locations and liaise with local authorities to develop strategies for litter control	Agency LAs	£30k p.a.		£20k	£10k			We have contributed to efforts by Communities Organised for a Greater Bristol (COGB) to reduce litter at the Avonmeads retail park/entertainment complex, St Philips, Bristol and have been working with Bristol City Council and the local traders and estate managers to develop and implement a litter control strategy. A bid for funds has been made to carry out trial sites for removal
14 Recreational pressure								
14.1 Liaise with the local planning authorities to ensure appropriate policies are included in Local Plans	LPAs Agency	See Issue 1		•				See Issue 1
14.2 Continue to participate in the Lower Avon Users Consultative Committee	Interest groups Riparian owners LAs Agency	£2.5k p.a.	Nil	•	•	•	•	Ongoing
14.3 Review the recreational potential of Agency owned land within the catchment	Agency	£5k p.a.	Nil	•				We are examining the opportunity for canoeing at Pulteney as part of FD Capital scheme together with the Local Authority and users

5. NEW RESPONSIBILITIES

5.1 Integrated Pollution Control

We are the statutory authority in England and Wales for regulating the largest and most complex industrial processes which discharge potentially harmful substances to air, water and land. To do this we use a system known as *Integrated Pollution Control* (IPC).

Two lists of processes have been prescribed by regulations made under the Environmental Protection Act (1990)(Part I): Part A processes are controlled under IPC by us, and operators of these controlled processes are required to have an authorisation. Authorisations also cover plant design and operation. We are required to ensure that the *best available techniques not entailing excessive cost* (BATNEEC) are used to prevent release of particular substances into the environment or where not practicable to minimise their release and render them harmless. Where a process is likely to involve releases into more than one medium, we ensure that the BATNEEC principle is used to ensure that the *best practicable environmental option* (BPEO) is adopted. Consideration of BATNEEC and BPEO are, primarily, site specific.

Part B processes are controlled at a local level under a system of Local Authority Air Pollution Control (LAAPC).

Under the Water Industry Act 1991, referrals of special category effluent for discharge to sewer from processes which are not subject to IPC are managed by us on behalf of the Secretary of State for the Environment.

5.2 Air Quality

Air quality is an indicator of environmental quality; poor air quality can damage flora and fauna and buildings, and have significant effects on soils and water.

Air pollution may be in the form of gas or particulate matter with its dispersion and dilution depending on climatic conditions. Its impact may be local, especially with regard to particulate matter which will often settle on nearby land or water, or may be global, for example, some refrigerant gases depleting the upper ozone layer, or affecting concentrations of greenhouse gases such as carbon dioxide.

We will need to work closely with others if improvements are to be achieved. This is particularly important with regard to local air quality where we are only one of a number of regulatory bodies, with a role in helping to achieve the government's air quality strategy.

Our work also involves authorising and regulating emissions to air from certain prescribed processes (Part A processes) and regulating landfill sites and in particular landfill gas. This gas is principally a mixture of methane and carbon dioxide.

Under Part 4 of the Environment Act 1995, the Government is required to publish a national strategy for air quality including :

- *a framework of standards and objectives for the pollutants of most concern*
- *a timetable for achieving objectives*
- *the steps the Government is taking and the measures it expects others to take to see that objectives are met*

The strategy was published for consultation in the summer of 1996. We will work closely with local authorities to help achieve the objectives of the National Air Quality Strategy.

In due course, air quality standards may be prescribed in regulations made by the Government and obligations placed on local authorities regarding the establishment and operation of local air quality management areas. Local authorities will have to carry out periodic reviews of air quality in their areas.

Where standards are not being met or are not likely to be met an air quality management area should be declared, known as a *Designated Area*, and an action plan produced to improve air quality.

5.3 Radioactive Substances

We are the principal regulator in England and Wales under the Radioactive Substances Act 1993. This statute is concerned with the storage, use and disposal of radioactive substances, and in particular, the regulation of radioactive waste.

We regulate the accumulation, keeping and use of radioactive materials, and the disposal of radioactive material, including that from licensed nuclear sites. *Certificates of registration* are issued for keeping and using radioactive materials and *certificates of authorisation* for the accumulation and disposal of radioactive waste.

5.4 Waste Management

It is our responsibility to enforce the majority of UK waste legislation which governs the management of waste generated from household, commercial or industrial sources to ensure protection of the environment, prevent harm to human health and detriment to local amenities. This is done by controlling the transport, storage, treatment and disposal of waste.

Where this waste is regarded as particularly hazardous it is categorised as *special* waste and becomes the subject of a strict tracking procedure, under the Special Waste Regulations 1996, to ensure that it is disposed of at an appropriate site.

Waste from agricultural premises and waste arising from mines and quarries are not classed as controlled waste at present and are therefore not the subject of regulation by us. Consideration is currently being given by the DoE into bringing these wastes within the definition of controlled wastes and therefore under the scope of our control.

Sites are principally controlled by issuing waste management licences. The licence contains conditions on the construction, maintenance and operation of sites, and stipulates monitoring requirements where we deem it necessary. The environment is protected by appropriate conditions which are agreed internally and circulated to external bodies as a consultation exercise prior to the issue of a licence.

Certain activities are now afforded exemptions from waste management licensing by the regulations. In general they are activities with less potential for pollution, and certain waste storage and recycling processes including the spreading of certain wastes on agricultural land for benefit. Exemptions are only granted if they will not give rise to the risk of pollution.

In the past waste management licences only related to the operational phases of any site and planning permission was the only means by which control could be exercised over closed sites. The introduction of the Waste Management Licensing Regulations (1994) under the Environmental Protection Act (1990) has changed this situation. Licences can now control the monitoring and aftercare of closed sites. Licences cannot be surrendered until we are satisfied that the site does not represent a risk to the environment.

The aquatic environment may be affected by surface water becoming contaminated as it flows over or near a site. Alternatively the ground within the site may become contaminated by the waste management activities and in turn any water percolating through the ground or the waste may pick up contaminants producing leachate.

Biodegradable wastes breaking down under anaerobic conditions will produce landfill gas, which a mixture of methane and carbon dioxide with trace amounts of other organic gases and vapours. In enclosed spaces it may be an asphyxiant and poses a risk of an explosion. Additionally, because of its methane content it is a strong greenhouse gas.

There is a potential problem from odours or the escape of wastes from waste management sites, for example litter or fumes. A site may also cause nuisance from noise or dust; local Environmental Health Departments have powers to control this nuisance and we liaise closely with them on these issues.

Key roles in waste will be provided by:

- *the Government in drawing up the National Waste Strategy, using data on current and future waste arisings and disposal facilities, and advice from the Environment Agency*
- *the Waste Planning Authorities (County Councils and the new Unitary Councils) who are required through land use policies and proposals to make provision for sufficient facilities*

6. COMPLETED ACTIONS

Issue 2.1	Eutrophication - Nutrient enrichment studies - collect chemical and biological data for the Lower Bristol Avon (LBA)
Issue 4.4	Impact of urbanization on water quality - Liaise with the Waste Regulation Authorities to ensure that traders are complying with the Environmental Protection Act, Environmental Protection (Duty of Care) Regulations 1991
Issue 6.2	Site specific water quality issues - Newton Brook - Confluence with Conygre Brook to Englishcombe, Englishcombe to confluence with the Avon
Issue 6.3	Site specific water quality issues - Doncombe Brook - Upstream Marshfield STW to downstream STW
Issue 8.1	Protecting groundwater in the catchment - Implementing Agency policy for the protection of groundwater (PPPG)
Issue 9.3	Impacts of abstraction on river flows - Promote and implement appropriate demand management and leakage control policies
Issue 9.5	Impacts of abstraction on river flows - Assess benefit of low flow alleviation
Issue 11.2	River restoration and channel management - Study the findings of the Agency Wetlands R&D Project and where appropriate implement in the catchment

7. GLOSSARY OF TERMS

AMP	Asset Management Plan
BOD	Biochemical Oxygen Demand
BW	British Waterways
CMP	Catchment Management Plan
CSO	Combined Sewer Overflow
DAP	Drainage Area Plan
DO	Dissolved Oxygen
DoE	Department of the Environment
EC	European Community
EN	English Nature
EQS	Environmental Quality Standards
FWAG	Farming and Wildlife Advisory Group
GQA	General Quality Assessment
IPC	Integrated Pollution Control
LEAP	Local Environment Agency Plan
LA	Local Authority
LPAs	Local planning authorities
MAFF	Ministry of Agriculture, Fisheries and Food
NRA	National Rivers Authority
pa	per annum
R&D	Research and Development
RE	River Ecosystem
RQO	River Quality Objective
RSPB	Royal Society for the Protection of Birds
SCC	Somerset County Council
STW	Sewage Treatment Works
WWSL	Wessex Water Services Ltd

Ml/d	megalitres per day (1 megalitre = 1,000,000 litres)
mg/l	milligrams per litre
µg/l	micrograms per litre
km	kilometre
km^2	square kilometre
£k	thousands of pounds
£M	millions of pounds

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