

# catchment management plan



## RIVER SEVERN LOWER REACHES



## Foreword

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The River Severn Lower Reaches Catchment Management Plan (CMP) Action Plan, published in November 1995, set out a five year programme of work to be undertaken to protect and enhance the water environment over the next five years. This Second Annual Review of the plan reports on progress made by the Environment Agency and others for the period November 1996 to November 1997.

The Environment Agency is committed to integrated environmental planning and is building on the strengths of the CMP process in its new Local Environment Agency Plans (LEAPs). Work will start in June 1998 on what will be called the Severn Vale LEAP with the Consultation Report being available in March 1999.

I am pleased to report that good progress has been made in the catchment addressing many of the issues raised in the plan, reflecting the commitment of all those involved. I look forward to continuing to work together over the coming year.

*Bill Forbes*

**Bill Forbes**  
Lower Severn Area Manager



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**second annual review**  
**January 1998**

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## Executive summary

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The second year of the Action Plan has seen good progress with real improvements to the catchment. The Action Plan set 15 key objectives for the Agency and others to work towards. There has been clear progress towards all those objectives. The objectives have guided our actions and those of others in the catchment to help improve the environment in a co-ordinated way.

There were 37 issues highlighted in the Action Plan with a total of 135 actions over the 5 year plan. Of these a total of 20 have now been completed and 88 programmed specific actions are underway and on schedule. Progress has been made on all these actions. We have not progressed according to plan with 15 actions, but work will continue on them. There are 12 actions which are scheduled to start in the coming years and one new issue has been added following consultation.

Work on the development of a Local Environment Agency Plan will commence in June 1998 building upon the success of the Catchment Management Plan and will lead to further protection and improvement of the environment.

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### **Previous River Severn Lower Reaches CMP Documents**

River Severn Lower Reaches Consultation Report - May 1995  
River Severn Lower Reaches Summary Report - May 1995  
River Severn Lower Reaches Action Plan - November 1995  
River Severn Lower Reaches First Annual Review - January 1997

Copies of the Summary Report, Action Plan and First Annual Review are available free of charge.

If you wish to discuss any matters arising from this document or require copies of documents please contact:

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## 1. Vision for the catchment

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In the Action Plan the former NRA set out its vision for the catchment as a series of key objectives. The Environment Agency believes that these objectives are still relevant and we are committed to working towards them through the actions set out in the CMP and through our routine work. In this review we will report on the progress towards these objectives in the last year and the steps we propose for the coming years.

- \* Seeking additional safeguards to protect water supplies by submission of proposals to the Department of Environment that the River Severn and Gloucester - Sharpness Canal should be designated as Water Protection Zones.
- \* Working in consultation with other authorities to manage mining activities in the Forest of Dean.
- \* Ensuring that development or use of contaminated land in Cheltenham, Gloucester, the Forest of Dean and Avonmouth is accompanied by responsible remedial measures.
- \* Upgrading the quality of the Rivers Chelt and Frome by sewage treatment works' improvements and enhancing the quality of the major tributary of the Severn - the Warwickshire Avon, by actions detailed in the Avon's Catchment Management Plan.
- \* Seeking adequate rural sewerage systems to serve areas where pollution is evident. Support will be given to local schemes which will employ sensitive and sustainable methods of treatment.
- \* Seeking a reduction of diffuse nitrate and phosphate pollution by assisting the Ministry of Agriculture Fisheries and Foods in managing Nitrate Vulnerable Zones and proposing to the Department of the Environment that the Gloucester-Sharpness Canal and the rivers Severn and Leadon be designated as Sensitive Areas (Eutrophic).
- \* Managing the residual flow in the Severn at Gloucester to meet requirements for water supply, navigation and fish migration.
- \* Restoring flow in the Glynch Brook in dry summers.
- \* Establishing a flood management strategy with Gloucester City Council using a combination of new roadworks, redevelopment of flood plain fringes, removal of redundant structures and installation of new flood defences.
- \* Providing flood alleviation works in Cheltenham in co-operation with Cheltenham Borough Council to give increased flood protection to more than 700 properties.

- \* Assisting the restoration of the Stroudwater, Thames and Severn and Herefordshire & Gloucestershire Canals where this does not adversely affect other uses.
- \* Seeking the return of otters to the catchment and protecting native stocks of brown trout, especially in the Forest of Dean, and crayfish in the Little Avon, from introduced species.
- \* Analysing the potential of river corridors;
  - a) Promoting the use of buffer zones and targeting areas for their establishment.
  - b) Planning and implementing a programme for landscape appraisal and focusing on restoring floodplain landscape, including archaeological features.
- \* Ensuring that development at Avonmouth does not reduce the present flood storage capacity or adversely affect wetland ecology by co-operation with Bristol and South Gloucestershire councils, the South Gloucestershire Internal Drainage Board and English Nature.
- \* Enhancing consultation with local authorities, agencies and developers within the planning process. This includes participation in the formal planning system and via Water Level Management Plans, Coastal and Catchment Management Planning.

## **2. Introduction**

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### **2.1 Environment Planning**

The Environment Agency has a statutory responsibility to contribute to sustainable development. As part of our contribution, we will produce non-statutory Local Environment Agency Plans (LEAPs) for the whole of England and Wales. LEAPs are integrated action plans to protect and improve the environment of an area, either by the direct actions of the Environment Agency or by the action of others. In partnership and consultation with others, we will use LEAPs to establish environmental objectives which will help to protect the resources of air, land, water, wildlife and heritage.

The Environment Agency shares the regulation and management of the environment with others. Whilst LEAPs are the Environment Agency's Plans, their content and development will reflect these shared responsibilities. LEAPs are not statutory plans and will compliment rather than interfere with other organisations' plans such as Local Waste Plans and Local Air Management Plans.

We aim to work in partnership with local authorities, public bodies, regulated industries, interest groups and others. We will liaise with local authorities and other direct partners during the collection of information, setting of targets and development of actions. The Consultation Report will provide the focus for broader public participation and we will consult widely to ensure that every group is able to make their views known. We will publish a response to comments on the plan.

The former NRA planned to review the River Severn Lower Reaches CMP in 1999. The Agency has decided to produce a LEAP for the same area, to be known as the Severn Vale LEAP, at the earliest opportunity and we will begin that process in June 1998. The development of a LEAP takes 18 months from the start to publication of the Action Plan. The timetable for the Severn Vale LEAP is shown overleaf.

### **2.2 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 in the catchment in an appropriate manner. The First Annual Review published in January 1997 summarised the progress made since the publication of the Action Plan in November 1995 up to January 1997. This Second Annual review will look at the progress made up to January 1998.

The activity tables have been reproduced as they appeared in the Action Plan. Notes on progress together with the name of an Environment Agency lead officer have been added.

## **Timetable for the River Sever Lower Reaches LEAP**

### **Development and production of the Consultation Report**

**June 1998 - March 1999**

A multi-disciplinary Environment Agency working group:

- describes uses, activities and pressures
- identifies issues
- proposes a vision for the area
- suggests actions to protect and improve the environment.

During this time the Agency will work with key partners to develop ideas and share information.



### **Public consultation**

**March - June 1999**

The Consultation Report will be circulated to relevant organisations and be made available to the public. The Agency will carefully consider and respond to all comments.



### **Action planning**

**July - September 1999**

The Agency will work with partners to develop an integrated, costed and timetabled 5 year plan of action.



### **Implementation**

**1999 - 2004**

The Agency and partners will deliver the actions set out in the plan. Progress will be reviewed annually and public reports produced. Interested parties and the general public can comment.

Annual Reviews will be published in November each year.

### 3. Summary of progress

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#### 3.1 Progress towards our key objectives

In the Action Plan we identified the following key objectives for the River Severn Lower Reaches for the 5 year plan period. These have guided our actions in the past year as the issues have been addressed. The following paragraphs show some of what we and others have done to progress towards these objectives. More detail is given in the activity tables in Section 4.

The objectives are highlighted in italics and examples of progress are shown as bullet points below. Many of the issues are inter-related but some are particularly relevant to specific objectives and these are listed in brackets after the progress.

*Objective: Seeking additional safeguards to protect water supplies by submission of proposals to the Department of Environment that the River Severn and Gloucester - Sharpness Canal should be designated as Water Protection Zones.*

**Progress:**

- Phase 1 of a Risk Assessment Study has been completed which will be used to target pollution prevention visits. Work is ongoing to establish future actions.

(Key issue: 3)

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*Objective: Working in consultation with other authorities to manage mining activities in the Forest of Dean.*

**Progress:**

- Liaison with other parties continues.

(Key issue: 13)

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*Objective: Ensuring that development or use of contaminated land in Cheltenham, Gloucester, the Forest of Dean and Avonmouth is accompanied by responsible remedial measures.*

**Progress:**

- The Environment Agency advises on pollution issues in Environmental Assessments carried out in accordance with the Town & Country Planning (Assessment of Environmental Effects) Regulations. A report on Forest of Dean contaminated sites has been produced.

(Key issue: 12)

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**Objective:** *Upgrading the quality of the Rivers Chelt and Frome by sewage treatment works' improvements and enhancing the quality of the major tributary of the Severn - the Warwickshire Avon, by actions detailed in the Avon's Catchment Management Plan.*

**Progress:**

- The completion date for the improvement of the sewage treatment works on the River Chelt and the River Frome are June 1999 and September 1998 respectively.

(Key issues: 4, 5, 6)

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**Objective:** *Seeking adequate rural sewerage systems to serve areas where pollution is evident. Support will be given to local schemes which will employ sensitive and sustainable methods of treatment.*

**Progress:**

- Applications for the provision of sewerage under the Environment Act 1995 have been accepted by Severn Trent Water Ltd for Claypits, Arlingham, Longney and High Green.

(Key issue: 9)

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**Objective:** *Seeking a reduction of diffuse nitrate and phosphate pollution by assisting the Ministry of Agriculture in managing Nitrate Vulnerable Zones and proposing to the Department of the Environment that the Gloucester-Sharpness Canal and the rivers Severn and Leadon be designated as Sensitive Areas (Eutrophic).*

**Progress:**

- The Gloucester-Sharpness Canal was proposed as a Sensitive Area (Eutrophic) in 1997 and a decision is awaited.
- A Nitrate Directive Review was carried out in 1997 and no new stretches qualified for designation.

(Key issues: 3, 4, 11)

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**Objective:** *Managing the residual flow in the Severn at Gloucester to meet requirements for water supply, navigation and fish migration.*

**Progress:**

- Approval has been given to proceed with phases 4 and 5 of the Shropshire Groundwater Scheme.
- A research project report on identifying flows for migratory fish is due in March 1998.

(Key issues: 20)

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**Objective:** *Restore flow in the Glynch Brook in dry summers.*

**Progress:**

- An application has been received from Severn Trent Water Ltd which will provide compensation flow to the Glynch Brook and will also reduce the amount abstracted from the groundwater unit. Both will contribute to an improvement in the flow.

(Key issue: 22)

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**Objective:** *Establishing a flood management strategy with Gloucester City using a combination of new roadworks, redevelopment of flood plain fringes, removal of redundant structures and installation of new flood defences.*

**Progress:**

- Work with Gloucester City continues in conjunction with the Local Plan and development proposals.

(Key issue: 25)

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**Objective:** *Providing flood alleviation works in Cheltenham in co-operation with Cheltenham Borough Council to give increased flood protection to more than 700 properties.*

**Progress:**

- The scheme has been designed, the public consulted and planning permission given.

(Key issue: 25)

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**Objective:** *Assisting the restoration of the Stroudwater, Thames and Severn and Herefordshire & Gloucestershire Canals where this does not adversely affect other uses.*

**Progress:**

- Sources of funding are being pursued.
- Restoration of the first lock on the Hereford & Gloucester Canal is proceeding.

(Key issues: 31, 34)

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**Objective:** *Seeking the return of otters to the catchment and protecting native stocks of brown trout, especially in the Forest of Dean, and crayfish in the Little Avon, from introduced species.*

**Progress:**

- The Otter Project has continued its programme of holt building. The repeat otter survey of the Lower Severn has shown a marginal improvement in the distribution of otter sites. A subsequent small scale survey in Gloucestershire revealed that otters are using more rivers and streams than previously thought.

(Key issue: 32)

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**Objective:** *Analysing the potential of river corridors;*

- a) *Promoting the use of buffer zones and targeting areas for their establishment.*
- b) *Planning and implementing a programme for landscape appraisal and focusing on restoring floodplain landscape, including archaeological features.*

**Progress:**

- A scoping report on river rehabilitation in Gloucester has been produced which has revealed a number of opportunities for rehabilitation on Daniels Brook, Dimore Brook, Wotton Brook and the River Twyver.

(Key issue: 28)

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**Objective:** *Ensuring that development at Avonmouth does not reduce the present flood storage capacity or adversely affect wetland ecology by co-operation with Bristol and South Gloucestershire Councils, the South Gloucestershire Internal Drainage Board and English Nature.*

**Progress:**

- The drainage strategy for Avonmouth is being implemented as new development proceeds.

(Key issue: 25)

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**Objective:** *Enhancing consultation with local authorities, agencies and developers within the planning process. This includes participation in the formal planning system and via Water Level Management Plans, Coastal and Catchment Management Planning.*

**Progress:**

- Water Level Management Plans are proceeding in co-operation with English Nature.
  - The Agency is working closely with local authorities and others on Shoreline Management Plans.
  - In partnership with others in the Severn Estuary Strategy Group the Agency has promoted integrated management of the estuary. In particular the Agency has led the production of the Issues Report which was published in May 1997.
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### 3.2 Summary of the Environment Agency's routine activities within the catchment:

In addition to the progress reported, the Agency has undertaken a variety of day to day activities to protect and improve the water environment. The following statistics relate to those duties inherited from our predecessor organisation the NRA and do not include our activities relating to waste regulation or integrated pollution control. During the period January 1997 to November 1997 routine work has included:

- Water Quality - Enforcement and routine monitoring work.
  - Responded to 486 pollution incidents
  - Carried out 350 sewage works inspections
  - Carried out 374 industrial site inspections
  - Carried out 79 inspections of contaminated land and waste disposal sites
  - Carried out 109 farm visits
  - Performed 302 inspections of combined sewer overflows (CSO) and other sewerage problems
  - Undertook 416 river site inspections
  - Issued 4 warning letters
  - Obtained and analysed 6100 chemical samples
  - Obtained and analysed 434 biological samples.
  
- Water resources - Licence determination, monitoring and enforcement
  - Carried out 547 enforcement visits
  - Sent 16 warning letters
  - Initiated 2 prosecutions for overabstraction
  - Investigated 66 incidents of low/no flows
  - Issued 42 new and varied abstraction licences.
  
- Fisheries and conservation
  - Carried out fish surveys at 55 sites in the catchment
  - Attended 10 fish kills
  - Stocked 10,000 coarse fish in the catchment
  - Completed 3 River Habitat Surveys
  
- The Environment Agency works closely with local planning authorities through its planning liaison function, commenting on Planning Application consultations and proposals associated with Local Development Plans.
  
- Flood defence activities covering regulation (including issuing of land drainage consents), enforcement, maintenance, emergency response and flood warning have included:
  - Issuing of 229 land drainage consents
  - Issuing of 14 flood warnings.

## **4. Activities and actions**

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Section 5 from the River Severn Lower Reaches Action Plan has been reproduced here. There were 37 issues in the Action Plan. The Review reports on the successful completion of some of the actions, on those actions where there is progress and where progress is less than expected. The actions represent the non-routine investment by the Environment Agency and others over the five year period.

### **4.1 Additions and alterations to the plan table**

Due to the evolving nature of the Action Plan, some changes are inevitable as a result of the past year's activities.

Some routine actions form part of the everyday protection policies of the Agency. Where applicable, progress has been reported on these issues. In subsequent reviews however, these activities will receive a reduced profile as CMPs and their successor documents become increasingly issue-led.

#### **Issues**

The issues are presented with a number of actions, a target timetable and the identification of responsible parties. Where possible costs have been outlined for the period covered by the plan. This does not necessarily reflect the total cost of schemes. The Action Plan and this Annual Review are produced in good faith, recognising the current priorities of both the Environment Agency and other organisations, and has been developed within existing economic political constraints. Progress will depend on the resources available and competing priorities; some Environment Agency costs have yet to receive full budgetary approval.

A number of actions will require feasibility studies and an appraisal of options prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be required. The timescales for actions may vary depending on future political change and changes within the economy.

Actions which were completed by the last review period have now been deleted. Where this has occurred a footnote has been included in the table.

One new issue has been added this year. Issue 38 is concerned with flood risk to the Gloucester-Sharpness Canal from the River Frome and River Cam.

## NOTES ON ABBREVIATIONS AND ACRONYMS

ACC	Avon County Council	HA	Hydro Action
AMP	Asset Management Plan	HMIP	Her Majesty's Inspectorate of Pollution
BR	British Rail	H&WCC	Hereford & Worcester County Council
BW	British Waterways	LA	Local authority
CC	County Council	MAFF	Ministry of Agriculture Fisheries & Food
CoCo	Countryside Commission	NRA	National Rivers Authority
CPRE	Council for Protection of Rural England	NFU	National Farmers Union
DC	District Council	NVZ	Nitrate Vulnerable Zone
DoE	Department of the Environment	RASE	Royal Agricultural Society of England
EA	Environment Agency	RSPB	Royal Society for the Protection of Birds
EN	English Nature	STP	Sewage treatment plant
FA	Forestry Authority	STW Ltd	Severn Trent Water Ltd
FAS	Flood alleviation scheme	UWWTD	Urban Waste Water Treatment Directive
FE	Forestry Enterprise	WLMP	Water Level Management Plan
FP	Floodplain	WRA	Waste Regulation Authority
FRCA	Farming and Rural Conservation Agency		
FWAG	Farming & Wildlife Advisory Group		
GAP	Global Action Plan		
GCC	Gloucestershire County Council		
GHT	Gloucester Harvour Trustees		
H&GCT	Herefordshire & Gloucestershire Canal Trust		

### KEY

>	Greater than
<	Less than
=	Action in the year indicated (numeric entry given if costs are known)
U	Unknown at this time
R	No additional costs to the annual budgetary provision (recurring or routine)
£K	£1000s

Changes are highlighted in bold.

## Issues list

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1. Achievement of water quality objectives.
2. Extension of designated fishery reaches.
3. Protection of water supplies from River Severn and Gloucester-Sharpness Canal and designations as Water Protection Zone.
4. Impacts of Urban Wastewater Treatment Directive and designation of Sensitive Areas (Eutrophic).
5. The impact of the River Chelt on the water quality of the River Severn.
6. Impact of investments and improvements at Netheridge Sewage Treatment Plant.
7. Sewage and industrial discharges.
8. Deleted.
9. Pollution from inadequate rural sewerage.
10. The impact of pesticides on water quality.
11. Farm pollution including the effects of ammonia and nitrate.
12. Pollution risks from contaminated land.
13. Pollution from mining and quarrying in the Forest of Dean.
14. Contact water sports and relevant water quality standards.
15. Impacts of marinas and oil pollution from boats.
16. River litter.
17. Seasonal effects of blue-green algae.
18. Hempsted Landfill Gloucester.
19. Deleted.
20. Maintenance of flows in the Severn for abstraction to the Gloucester-Sharpness Canal and other environmental uses.
21. Potential effects of a Severn-Thames transfer scheme.
22. Impacts of low flows in the Leadon, Forest of Dean, Frome and Cam/Little Avon.
23. Severn Exempt Area Order.
24. Local issues relating to fish farms.
25. Major flooding from the Rivers Severn and Chelt.
26. Flood warning.
27. Floodplain management.
28. Rehabilitation of river corridors.
29. Competing requirements of river engineering and other uses.
30. Deleted.
31. Development of recreational access.
32. Protection of vulnerable species.
33. The management of the salmon and elver fisheries.
34. Canal restoration.
35. Hydropower development.
36. Deleted.
37. Water Level Management.
38. **Flood risk to the Gloucester-Sharpness Canal from the Rivers Frome and Cam.**

# SUMMARY OF ISSUES



**ISSUE 1 Achievement of River Quality Objectives**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Pursue achievement of short term river quality class within timescale set, by pollution prevention, liaison with public and other bodies and enforcement of pollution legislation.	EA	STW Ltd Farmers BW Industry WW	150	30	30	30	30	30		Roger Wade
<b>Progress</b> See Table 1.1 on following page.										
2. Establish reasons for non-compliance with all long term targets during period of Plan and pursue upgrading.	EA		50	10	10	10	10	10		Roger Wade
<b>Progress</b> See Table 1.2 on following pages. Stretches in this table will be targeted for investigation to determine reasons for non-compliance.										

**TABLE 1.1 Stretches which were failing to meet Short Term River Quality Objective Targets in 1994.\***

River	Stretch Description	Reach (km)	River Quality Objectives							Comment
			Quality			Objectives				
			1994	1995	1996	Short Term		Long Term		
Ripple Brook	Bow Bridge to R. Severn	2.3	RE4	RE4	RE5	RE3(1995)	⊗	RE2	⊗	Significant DO failure causes the stretch to fail its long term RE2 objective. The wide and deep nature of the watercourse in the lower reaches leads to low dissolved oxygen concentrations. There is a proposal to re-engineer the watercourse, but no scheme has yet been agreed or funded.
River Chelt	M5 Culvert to FB near Becketts Farm	2.2	RE5	RE5	RE5	RE4(2000)	⊗	RE4	⊗	Fails to comply with long term RE4 objective due to significant ammonia and BOD failures. The quality in this stretch directly reflects the final effluent quality of Cheltenham (Hayden) STW. Although working within its consented discharge limits, ammonia and BOD performance was down in 1996. Hayden STW is being uprated under discretionary AMP2 spending. Significant failure due to ammonia. The above comments apply as there is little dilution until the confluence with the River Severn. The stretch should get better under new improvements at Hayden works.
	FB near Becketts Farm to R. Severn	5.0	RE5	RE5	RE5	RE4(2000)	⊗	RE4	⊗	
Ley Brook	FD at Round Hill to R. Severn	5.0	RE4	RE3	RE3	RE2(1998)	⊗	RE2	⊗	Fails to comply with long term RE2 objective due to marginal BOD failure, the result of intermittent farm pollution. Farm pollution prevention visits under way to target the problem.
Coaley Brook	Tickshill - Hydegate Bridge to River Cam	3.8	RE3	RE2	RE3	RE2(1995)	⊗	RE1	⊗	Failure to comply with long term RE2 objective due to significant dissolved oxygen failure. Intermittent farm pollution, combined with low summer flows is the likely cause.
Little Avon	Southwood Farm - B4060	2.8	RE3	RE3	RE2	RE2(1997)	⊙	RE2	⊙	Now complies with long term objective. A series of farm pollution prevention visits may have contributed to improvements in farm management practices and this in turn has led to improvements in water quality.

**Key:** ⊙ = Quality meets objective    ⊗ = Quality does not meet objective

**Notes:**\* The assessment for each year is based on three years of routine monitoring data, up to, and including that year.

Stretches which failed to meet their Short Term River Quality Objective in 1994 but complied in 1995 and 1996 are not included in this table. Comments on the improvement of their quality were detailed in the 1995 Review.

**Table 1.2: Stretches which are significantly failing to meet their Long Term River Quality Objectives in 1996.\***

River	Stretch Description	Reach (km)	River Quality	
			Quality 1996	Long Term Objective
Gloucester Sharpness Canal	Conf. Daniels Bk to Conf. River Frome River Frome to Sharpness Docks	12.5	RE3	RE2
		12.5	RE3	RE2
Longhope Brook	Longhope STW to Conf. with Westbury Brook	3.5	RE4	RE2
Frome (Northern Arm)	Ebley to Conf. with Southern Arm	5	RE2	RE1
Frome (Southern Arm)	Stanley Downton STW to Conf. North Arm	2	RE4	RE3
Red Brook	Conf. with Huntley Brook to River Leadon	2.9	RE4	RE2
Preston Brook	FB at Laddin Farm to River Leadon	6	RE4	RE1
Kempley Brook	Whitlocks End to Conf. with Preston Brook	5	RE4	RE1
Cam	Upstream Listers to Coaley STW Outfall Coaley STW Outfall to Waterend Farm	5	RE2	RE1
		1	RE4	RE3
Coaley Brook	Tickshill-Hydegate Bridge to River Cam	3.8	RE3	RE1
River Twyver	Tredworth to Conf. with River Severn	5.5	RE5	RE2
River Chelt	M5 Culvert to FB Nr. Becketts Farm FB Nr. Becketts Farm to River Severn	2.2	RE5	RE4
		5	RE5	RE4
Leigh Brook	Coombe Hill to River Chelt	5	RE5	RE2
Ripple Brook	Bow Bridge to River Severn	2.3	RE5	RE2
Pool Brook	Hanley Castle to B4209 Bridge, Hanley Swan B4209 Bridge, Hanley Swan to River Severn	1.8	RE4	RE2
		3.4	RE3	RE2
Mere Brook	U/S of Gilberts End to Pool Brook	2.5	RE6	RE2
Ozleworth Brook	Wks to Conf. with Little Avon	2.1	RE4	RE2

Notes: \* The assessment is based on three years of routine monitoring data, up to, and including 1996.

**ISSUE 2      Extension of designated fishery reaches**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
Review designations under the EC Freshwater Fish Directive to ensure that designated stretches reflect fishery use and resolve mis-matches between actual fishery status and water quality.	EA		6	3	3					Roger Wade
<p><b>Progress</b>                      In light of the new Freshwater Fish Regulations issued in 1997, no new stretches have been proposed to DETR for designation. The Agency is involved in national discussions with DETR regarding this.</p>										

**ISSUE 3 Protection of water supplies from the River Severn and Gloucester - Sharpness Canal and designation as Water Protection Zone**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Feasibility study to consider designation of R. Severn and Gloucester-Sharpness Canal as Source Protection Zones	EA	DoE BW	43	3	40	15	5			Charles Tucker
<p><b>Progress</b> Phase 1 of the study, a Risk Assessment, has now been completed. Further work is ongoing to establish the required actions.</p>										
2. Install additional automatic water quality monitors at Kempsey and Slimbridge.	EA		100	----	----	(-----)				Roger Wade
<p><b>Progress</b> An automatic water quality monitor has now been installed at the River Cam confluence with the Gloucester-Sharpness Canal at Slimbridge. It has not proved possible to install a monitor at Kempsey.</p>										
3. Establish targeted programme of inspections of potentially polluting premises and act on deficiencies identified.	EA	Industry Farmers	30			10	10	10		Paul Quinn
<p><b>Progress</b> A catchment inventory is now being produced using the information gained from the Risk Assessment Study (See Action 1). This will be used to target pollution prevention visits.</p>										

**ISSUE 3      Protection of water supplies from the River Severn and Gloucester - Sharpness Canal and designation as Water Protection Zone (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
4. Initiate targeted publicity campaigns to mobilise pollution prevention effort in Agriculture and Industry.	EA	Farmers Industry BW	20			10	5	5		Paul Quinn
<p><b>Progress</b> Information gathered from the Risk Assessment Study (Action 1) is being used to target pollution prevention visits.</p>										
5. Liaise with Planning Authorities and Developers to minimise pollution risk from development.	EA	LAs Developers STW Ltd	60 (estimate will be demand led)	12	12	12	12	12	Ongoing	Roger Wade/ Paul Quinn
<p><b>Progress</b> The Agency continues to liaise with local authorities and developers regarding new development. All local authorities are aware of the Agency requirements for pollution prevention measures. In particular the Forest of Dean DC no longer approve any development where septic tanks are being proposed to treat foul drainage. An alternative treatment plant would be preferred.</p>										

**ISSUE 4 Impacts of Urban Wastewater Treatment Directive and designation of Sensitive Areas (Eutrophic)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Monitor Severn Trent Water Ltd implementation of agreed capital programme of specified timetable	EA	STW Ltd	EA = R	-----	-----	-----	-----	-----		Roger Wade
<p><b>Progress</b> The majority of applications for work under the agreed capital programme have been received. Discussions concerning these and the outstanding applications are taking place between Severn Trent Water and the Agency.</p>										
2. Review consents in line with agreed programme	EA	STW Ltd	10	2	2	2	2	2		Roger Wade
<p><b>Progress</b> The consent for Lydney Sewage Treatment Works was issued in 1997.</p>										
3. Gather data to enable decisions to be made on proposed Sensitive Areas (Eutrophic)	EA		10	5	5					Roger Wade
<p><b>Progress</b> The rivers Leadon, Chelt, Cam, Frome and the Gloucester-Sharpness Canal were all proposed to the DETR as Sensitive Areas (Eutrophic) in 1997.</p>										
4. Carry out Eutrophication Project to assess impact and benefits of phosphorus removal from sewage works in Sensitive Areas (Eutrophic).	EA		U		-----	-----	-----			Roger Wade
<p><b>Progress</b> The River Avon Eutrophication Project has been completed and the information gathered should be useful in determining its contribution to the River Severn.</p>										

**ISSUE 5      The impact of the River Chelt on the water quality of the River Severn**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Liaise with Severn Trent Water plc to define optimum schemes to upgrade quality in line with AMP 2 commitments	EA	STW Ltd	STW Ltd = > 6,000 (cf Issue 4)	-----	-----	-----	-----	-----		Roger Wade
<p><b>Progress</b> A revised consent for Hayden Sewage Treatment Works at Cheltenham has been issued. Construction work is proceeding with completion expected 1999.</p>										
2. Assess need for phosphorus removal at Cheltenham STP during 1995/6 for future review for proposed Sensitive Area (Eutrophic) designation for the River Severn and Gloucester-Sharpness Canal	EA		4	2	2					Roger Wade
<p><b>Progress</b> The River Severn was proposed for designation as a Sensitive Area (Eutrophic) during 1997 but was withdrawn due to lack of evidence. The Gloucester-Sharpness Canal was proposed to the DETR in 1997 as a Sensitive Area (Eutrophic) and a decision is awaited. The River Chelt was also proposed as a Sensitive Area (Eutrophic) in 1997. A decision on whether phosphorus removal will be required at Hayden Sewage Treatment Works has been deferred to enable modelling work to be carried out.</p>										

**ISSUE 6      Impact of investments and improvements at Netheridge Sewage Treatment Plant**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
2. Continue to monitor effect of improvements to estuarine water quality	EA		R							Bill Blake
<p><b>Progress</b> The Agency continues to monitor both the effluent from Netheridge and the estuary. Improvements in water quality have been recorded and this is reflected in the diversity and numbers of fish species being caught. Helicopter and boat surveys continue to be carried out in the upper estuary. Results show that depletions in dissolved oxygen are now only associated with the re-suspension of suspended solids during high spring tide events and low flows.</p>										
3. Assess effects on migratory fish	EA	Anglers Commercial Fishing	U	----	----	----	----	----		Alan Churchward
<p><b>Progress</b> There has been a significant reduction in mortalities since the improvement works at Netheridge. There was only one incident recorded on 23/08/97, which killed 12 salmon, caused by low dissolved oxygen from spring tides stirring sediments at a time of low flow and high temperatures.</p>										
4. Review water quality monitoring at Minsterworth	EA		20			20	----			Roger Wade
<p><b>Progress</b> The water quality monitor at Minsterworth has operated successfully for short periods only. A review of the requirement for data and revised operation needed will be undertaken in 1998/99. The wording of the action has been altered to reflect the current situation.</p>										

Note: Action 6.1 Monitor completion of new works and improvements in effluent quality was completed in 1995/96.

**ISSUE 7 Sewage and industrial discharges**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Recommend appropriate controls on new development in Ledbury and impose controls on Ledbury STP to minimise potential pollution.	EA	STW Developers Malvern Hills DC H&G CT	EA = 3	1	1	1				Paul Quinn/ Roger Wade
<p><b>Progress</b> The Agency comments on planning applications and advises Malvern Hills DC on their pollution potential. Improvements to Ledbury STP will be funded under the current arrangement with Severn Trent Water Ltd and should be implemented by the year 2000.</p>										
2. Assess need for phosphorus removal at Coaley STP during 1995/6 for future review of Sensitive Area (Eutrophic) designation for the Gloucester-Sharpness Canal	EA		2	1	1					Roger Wade
<p><b>Progress</b> The Sensitive Area (Eutrophic) Review was carried out in 1997 and the Gloucester-Sharpness Canal, River Cam and River Frome have all been proposed to the DETR as Sensitive Area (Eutrophic). If this is approved by the DETR, then phosphorus removal will be required at Coaley and Stanley Downton Sewage Treatment Works by 2004.</p>										

**ISSUE 8 Upstream impacts on water quality in the River Severn**

This issue was deleted from the Action Plan as it is covered in the River Severn Middle Reaches CMP and the Warwickshire Avon CMP

**ISSUE 9      Pollution from inadequate rural sewerage**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Promote action by District Councils and others to provide first time sewerage	LAs (DCs)	STW Ltd EA	R	-----	-----	-----	-----	-----		Paul Quinn
<p><b>Progress</b> The Environment Act 1995 has changed legislation on this matter and the Agency will work with others to use this legislation to reduce pollution. In view of this it is more appropriate to show local authorities as the lead organisation in this action. The application to STW Ltd for provision of sewerage at High Green has been accepted.</p>										
2. Feasibility study by Stroud District Council at Claypits, Arlingham and Longney.	Stroud DC		10	-----	-----					Paul Quinn
<p><b>Progress</b> Applications for sewerage to be provided under Section 101 A of the Water Industry Act have now been accepted by STW Ltd for Claypits, Arlingham and Longney. Schemes are now being drawn up.</p>										
3. Explore feasibility of alternative sewage treatment methods e.g. reed-beds	EA	STW Ltd Developers DCs	R	-----	-----	-----	-----	-----		Roger Wade/ Paul Quinn
<p><b>Progress</b> The performance of reed bed and wetland water treatment systems continues to be monitored. In particular trials are ongoing at Slimbridge and the Camphill Trust into various types of reedbed systems to treat sewage effluent. The Agency continues to advise and encourage these schemes.</p>										

**ISSUE 10 The impact of pesticides on water quality**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	PROGRESS
	LEAD	OTHER								
1. Target farm visits and inspections. Prosecute polluters when found	EA	Farmers ADAS STW	Cf. Issue 3 (3)	-----	-----	-----	-----	-----		Paul Quinn
<p><b>Progress</b> The Agency continues to undertake farm visits and advise on pollution prevention measures. In particular we aim to tailor this advice to farmers based on the type of crops grown and the likely pesticides applied to these crops.</p>										
2. Continued monitoring of eels in the catchment for Dieldrin etc.	EA	MAFF	2.5	0.5	0.5	0.5	0.5	0.5		Alan Churchward
<p><b>Progress</b> Dieldrin levels for the eels in the River Frome have fallen again to an average level of 30µg/kg. Six eels had concentrations below the level of detection (&lt;1µg/kg). This confirms that there has been a steady and continuing improvement since the problem was first noted in 1986.</p>										

**ISSUE 11 Farm pollution including the effects of ammonia and nitrate**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Maintain targeted farm inspections(including Effluent Management Plans) and identify remedial action needed	EA ADAS	Farmers	Cf. Issue 3 (3)	----	----	----	----	----		Paul Quinn
<p><b>Progress</b> The Agency continues to carry out routine farm inspections as part of its daily operation.</p>										
2. Serve Notices under 1991 Farm Waste Regulations to secure remedial action	EA	Farmers	R	----	----	----	----	----		Paul Quinn
<p><b>Progress</b> The Agency aims to educate and encourage farmers to comply with good agricultural practice. Notices are served where necessary.</p>										
3. Prosecute identified polluters	EA		R	----	----	----	----	----	Ongoing	Paul Quinn
<p><b>Progress</b> The number of farm pollution incidents has declined but the Agency still prosecutes polluters and prosecutions have been brought in the last year.</p>										
4. Monitor effectiveness of Nitrate Vulnerable Zones in reducing nitrate in local watercourses and groundwater	EA MAFF	STW	R	----	----	----	----	----	Study & review	Roger Wade
<p><b>Progress</b> Agricultural run-off and over application of fertilisers can lead to high nitrate concentrations. A Nitrate Directive review was carried out in 1997 and no new stretches qualified for designation.</p>										

**ISSUE 12    Pollution risks from contaminated land**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Recommend planning conditions and assist in securing associated Section 106 obligations on redevelopment of contaminated land.	EA	Developers LAs	R	----	----	----	----	----	Ongoing	Brian Bone
<p><b>Progress</b> Leachate removal wells have been installed at Tommy Taylors tip in Cheltenham and as a result pollution has reduced dramatically.</p>										
2. Encourage engineering and waste management solutions	EA	Land-owners Developers	R	----	----	----	----	----	Ongoing	Brian Bone
<p><b>Progress</b> Remediation work has been undertaken at the Gloucester Gasworks site.</p>										

ISSUE 12 Pollution risks from contaminated land (Continued)

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
4. Assist local authorities with establishing a database of information on existing contaminated land sites	LAs	EA	2.5	0.5	0.5	0.5	0.5	0.5	Ongoing	Brian Bone
<p><b>Progress</b> Work on a database of sites for the Gloucestershire area has been completed. Information on contaminated land sites in the South Gloucestershire Council area is being collected. A report on contaminated sites in the Forest of Dean has been produced. The Agency continues to liaise with local authorities on the preparation for the implementation of Section 57 of the Environment Act and Contaminated Land Regulations.</p>										
5. Recommend environmental assessment and scope of study on significant planning applications concerning contaminated land	EA	LAs Developers	U	----	----	----	----	----	Ongoing	Brian Bone
<p><b>Progress</b> The Town and Country Planning (Assessment of Environmental Effects) Regulations, 1988 outline whether an Environmental Assessment is required. The Agency advise on appropriate issues.</p>										
6. Implement water quality survey of rhines around Severnside	EA		22.4		----	2				Viv Dennis
<p><b>Progress</b> Areas of likely contaminated land have been identified and a two phase (winter and summer) survey for heavy metals and other pollutants has been planned. The winter survey is completed and a report will be produced once phase two is completed in summer 1998. Results so far indicate some Environmental Quality Standards have been exceeded.</p>										

**ISSUE 13 Pollution from mining and quarrying in the Forest of Dean**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Enforce legislation for discharges to controlled waters, including underground waters, where justified by available evidence	EA	Mining Companies Forestry Enterprise Landowners	R	-----	-----	-----	-----	-----	Ongoing	Paul Quinn
<p><b>Progress</b> See Issue 12 Action 4.</p>										
2. Liaise with companies to secure improved pollution prevention measures	EA FE		Cf. Issue 3 (3)	-----	-----	-----	-----	-----		Paul Quinn
<p><b>Progress</b> Visits are undertaken as part of day to day pollution prevention work and companies are advised how to reduce pollution risks from chemicals.</p>										
3. Assess possibility of remedial measures to the riverbed habitat, including removal of iron-contaminated substrate	EA	Mine Owners	U		-----					Roger Wade
<p><b>Progress</b> The possibility of remedial work is still being considered.</p>										
4. Support the clean up of pollution threat from illegal waste dumping in mine shafts at Sling.	Landowners	EA LAs Deputy Gaveller FE	U	-----	-----					Brian Bone
<p><b>Progress</b> During Autumn 1998, the Agency intends, with the support of local authorities and others, to apply for additional government funding which is available for the clean-up of contaminated land sites which have the potential to contaminate controlled waters.</p>										

**ISSUE 14 Water contact sports and relevant water quality standards**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Education on problems of contact sports in relation to water quality	LAs (Public Health)	Sports Council Recreational Groups (e.g. Canoe Union)	R	----	----	----	----	----	Ongoing	Roger Wade
<p><b>Progress</b> District Councils are responsible for providing advice as required.</p>										
2. Identify Water Quality standards for contact sports	EA									Roger Wade
<p><b>Progress</b> National discussions regarding this Directive have now finished and it has been concluded that the Bathing Water Directive does not allow for the inclusion of standards for contact sports. No action proposed.</p>										

**ISSUE 15 Impacts of marinas and oil pollution from boats**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
Monitor impact of boat standards regarding oil storage and implementation of Waterways Act 1995.	EA BW GHT		2.5	0.5	0.5	0.5	0.5	0.5	Ongoing	Paul Quinn
<p><b>Progress</b> The Agency continues to monitor the impact of the Boat Standards. A progressive reduction in oil from boats is anticipated.</p>										

**ISSUE 16 River litter**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Better security at industrial sites to prevent vandalism	Site Owners		U	----	----	----	----	----		Paul Quinn
<b>Progress</b> The Agency continues to advise sites on containment systems to prevent vandals dumping rubbish into watercourses.										
2. Educate and organise preventative action: a) site specific  b) set up catchment forum to address problem.	EA LAs Tidy Britain Group	Police Local Groups BW	U  R	----	----	----	----	----		Paul Quinn
<b>Progress</b> a) No progress to report. b) No progress has been made regarding the setting up of a forum.										

Note Action 3 has been deleted as there is little possibility of a change in legislation in the near future.

**ISSUE 17 Seasonal effects of blue-green algae**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Continue to monitor all reported occurrences and notify interested parties when reportable levels found	EA	Landowners LAs BW	R	----	----	----	----	----		Alan Churchward
<p><b>Progress</b> Routine/ ongoing work. A public information leaflet is available.</p>										

**ISSUE 18 Hempsted Landfill Gloucester**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
Continue to regulate the site to ensure compliance with appropriate standards.	EA	Site Owner	R							Paul Quinn
<p><b>Progress</b>                      The licence holder has submitted a revised working plan to the Agency. This details how they intend to operate the site in future. The Agency are presently preparing modifications to the waste management licence. It is anticipated that a modification to the licence will be issued by mid 1998. This should ensure that operations at the site are undertaken in accordance with current best practice such that the site should not give rise to pollution of the environment, harm to human health or serious detriment to the environment.</p>										

**ISSUE 19 Impacts of large industrial plant.** Issues relating to various aspects of large industrial plant have been highlighted in the Severn Estuary Joint Issues Report and are being incorporated into the Severn Estuary Action Plan.

**ISSUE 20 Maintenance of flows in the Severn for abstraction to the Gloucester - Sharpness Canal and other environmental uses**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
<p>The actions in this issue aim to increase the flow to the upper estuary during periods of low flow, maintaining adequate water quality and flow for fish migration. This is a long term strategy with small incremental improvements. Associated with the aim is the better scientific understanding of the flows required.</p>										
1. Review of operation of Llyn Clywedog and Shropshire Groundwater to provide required flows at Gloucester	EA	BW	30			----				Paul Bailey
<p><b>Progress</b> Environment Agency Board approval was given in November 1997 to proceed with the Shropshire Groundwater Scheme phases 4 &amp; 5. Emphasis has been on low flows/drought conditions. AERC Ltd has produced a draft Environmental Assessment of the Drought Order on the River Severn - contributing to the understanding of the flows.</p>										
2. Feasibility study of options to include										Paul Bailey
a) The use of Gloucester - Sharpness Canal to store water for use during periods when pumping at Gloucester is restricted	EA	BW Bristol Water LA	30	----	----					
b) Bankside storage equivalent to 5 days of the Purton abstraction and options for transfer from the River Frome.	EA	LA		----	----					
c) River storage in the River Severn by adjustment of weirs at either Maisemore, Llanthony, Upper Lode or a tidal exclusion barrier below Lower Parting	EA	GHT H&G CT LA			----	----	5	----		
<p><b>Progress</b> The option of a partial tidal barrier below Gloucester is receiving most support. £250K will be needed if modelling of this option is to proceed. Funding options are being investigated.</p>										

**ISSUE 20 Maintenance of flows in the Severn for abstraction to the Gloucester - Sharpness Canal and other environmental uses (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
4. Identification of flows required to protect migratory fish.	EA		30	-----	-----	-----				Roger Wade
<p><b>Progress</b> The project objectives have been revised and the report is now due in March 1998 to reflect this.</p>										
5. Investigate relationship of river levels to conservation meadow SSSIs.	EA		20			-----				Paul Bailey
<p><b>Progress</b> This investigation has been incorporated into the proposals for 'Impacts of Gloucester Weir' which is a joint project between the Agency, British Waterways and Bristol Water Company. Further studies are proposed.</p>										

Note: Action 3 Installation of new flow monitoring site at Deerhurst was completed in 1995/ 96.

**ISSUE 21 Potential effects of a Severn - Thames transfer**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Appraisal of environmental implications of the scheme for the Severn.	EA LAs	BW	20		----					Paul Bailey
<p><b>Progress</b> Studies have been undertaken by Thames Region of the Agency. No further progress to report.</p>										
2. Investigations into Biology and Chemistry of Severn to assess impact on Thames	EA		R		----	----				Paul Bailey
<p><b>Progress</b> Thames Region of the Agency are still considering options.</p>										
3. Promote best use of water resources	EA LAs GAP		20		----		----			Paul Bailey
<p><b>Progress</b> The initiative to create a low water use garden in collaboration with the National Trust has been postponed until 1998/ 99.</p>										

**ISSUE 22    Impact of low flows in the Leadon, Forest of Dean, Frome and Cam/ Little Avon**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
<b>1. Leadon (Glynch Brook)</b> a) Provide compensation borehole b) Reduce licensed quantity in unit	EA STW			-----	-----	-----	-----	-----		Paul Bailey
<b>Progress</b> a) & b) An application has been received from STW Ltd providing both compensation flow to the Glynch Brook and a reduction in the abstraction licensed quantity in unit.										
<b>2. Forest of Dean</b> a) Provide new flow measurement on River Lyd possibly in association with a hydropower scheme	EA		2			1	1			Paul Bailey
<b>Progress</b> A consultant has been appointed for a scoping study on the hydropower and flow measurement scheme at Norchard 's Drift.										

Note: Action 1 c) Provide new flow measurement capacity to Glynch Brook was completed in 1995/96.

**ISSUE 22 Impact of low flows in the Leadon, Forest of Dean, Frome and Cam/ Little Avon (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
<b>3. Frome</b> a) Investigation into perceived low flows in upper Frome b) Operating agreement with landowners to control flows to Canal and River.	EA	BW	EA = 25				2.5			Paul Bailey
	EA Land-owners	CCT	EA= 30		----		5			
<b>Progress</b> a) Low flow model commissioned - results due early 1998. b) Reports completed for Bakers Mill and Iles Mill - recommendations to be agreed early 1998.										
<b>4. Little Avon</b> a) Conduct seasonal flow monitoring investigations and compare with historical records: fish farm gauging and appraisal of historical data. b) Ensure all licence abstractions operate within specified conditions c) Conduct aerial surveys to check for non-licensed abstractors	EA		5		----					Robin Harvey
	EA		R	----	----	----	----	----	Ongoing	
	EA		1		----	----	0.5-1			
<b>Progress</b> a) Further data collected at fish farms did not highlight any non-compliance with abstraction/discharge licences. In view of this it is proposed that the amount of data collected be reduced. The monitoring programme in place to check compensation flows at Nind Fish Farm shows them to be significantly in excess of minimum requirement during visits. This will continue during Summer 1998. Berkeley flow monitoring station review completed by schedule date (Feb'97). The accuracy of Ozleworth Brook flow measurement station is still under review as further data at high flows is still required. b) Abstraction licence monitoring is part of an on-going rolling programme. c) No aerial surveys were carried out in 1997 due to unsuitable weather patterns. Surveys will be undertaken in 1998 pending more suitable weather										

**ISSUE 23 Severn Exempt Area Order**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. EA to review policy of exempt area to support proposals for legislative changes	EA		R		-----	-----	-----			Paul Bailey
<p><b>Progress</b>            A high level review of legislation (nationally) commenced in October 1997.            An exercise has started to identify all abstractions that may require a licence.</p>										

**ISSUE 24 Local issues relating to fish farms**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Review of flow management practices - consents and field visits in Little Avon Catchment.	EA		1		----					Paul Bailey
<p><b>Progress</b> Audits carried out on a small number of the major dischargers did not highlight any non-compliance with licence conditions.</p>										
2. Chemical & Biological survey upstream & downstream of fish farms to determine any change in water quality. Sites for Action: Ozleworth Brook	EA		3	----	----					Viv Dennis
<p><b>Progress</b> Data continues to be collected on local fish farms. A report on the biological impacts of the fish farms has been produced with some later follow up work which indicates that there is an impact on river ecology. However, chemical monitoring shows only a minor deterioration. It does not show a class change due to the fish farms. Monitoring will continue to assess the extent and cause of the problem. The terms and conditions imposed by licences have been complied with during all visits. In view of this it is proposed that the amount of data collected be reduced.</p>										

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Complete investigation of possible flood alleviation works at: b) Kempsey	EA	GHT	630			30		----		Paul Bailey
<b>Progress</b> Scheme delayed due to need to progress higher priority schemes.										
2. Investigate flood alleviation proposals for Gloucester	EA	LAs GHT	U	----						Paul Bailey
<b>Progress</b> Opportunities to progress are still being sought in conjunction with the Gloucester City Local Plan and any development proposals.										
3. Complete Severn Tidal Defences Improvement Scheme in accordance with EA capital works programme agreed by Regional Flood Defence Committee	EA		11,000	----	----	----	----	----	Ongoing	Paul Bailey
<b>Progress</b> The first of two parts to improve the Binn Wall (Phase 4) defences near Severn Beach has been completed.										

Note: Action 1a) the scheme at Upton-on-Severn was not financially viable and was withdrawn from the plan in 1995/96.

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/2 000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
5. Develop flood alleviation scheme on River Chelt through Cheltenham	EA	Cheltenham BC	12,197	66 (8)	-----	-----	-----	-----	To 2006	Paul Bailey
<b>Progress</b> Public exhibition was held very successfully. The opportunity for financial contribution through partnership with the developer at the St. James site is being pursued vigorously.										
6. Protection of rhine system.	SGIDB		R	-----	-----	-----	-----	-----	Ongoing	Paul Bailey
<b>Progress</b> The agreed drainage strategy developed by SGIDB is being implemented as new development proceeds.										
7. Protection of available storage capacity for flood waters in tide-lock conditions.	SGIDB		R	-----	-----	-----	-----	-----	Ongoing	Paul Bailey
<b>Progress</b> The agreed strategy is being implemented as new development proceeds.										

Note: Action 4 was completed in 1995/96 when the Chelt was designated a Main River.

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Complete improvement of existing flood warning scheme	EA		R	----	----	----	----	----		Paul Bailey
<b>Progress</b> New flood warning arrangements were introduced in September 1996 and have been successfully utilised during real flood events during 1997. Additional 'at risk' properties have been added to the service coverage.										
2. Investing etc. in extension of flood warning scheme to areas not currently covered	EA		R		----	----	----	----		Paul Bailey
<b>Progress</b> Target and Actual Standards of Service are being assessed for the existing service areas. When these are established, extensions to the service will be considered.										
3. Develop new tidal flood warning scheme for estuary	EA		U	----	----	----	----	----		Paul Bailey
<b>Progress</b> Tidal surge models are still being developed (nationally) but lack the necessary accuracy to support a tidal warning service. The high risk unprotected area of Weir Green has not been protected by new defence. Plans are in hand to protect the area around Purton.										

Note: Action 4 was completed in 1995/96 with the revised dissemination arrangements coming into force on 1 September 1996.

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Accurate definition of the floodplain for River Frome	EA		118	-----			2.5			Paul Bailey
<b>Progress</b> Results of model have been analysed. Some further work may still be required to achieve appropriate confidence.										
2. Promotion of Buffer Zones particularly in areas of arable farming. Leadon, Ell Brook, Swilgate, Normans Brook, lower reaches of Cam, Chelt and Frome.	EA		U	-----	-----	-----	-----	-----		Alan Churchward
a) Identify framework for action	EA	FWAG	U	-----	-----					
b) Demonstration Project at Royal Agricultural Showground, Stoneleigh	EA	RASE	12	-----						
c) Develop strategy for individual river corridors	EA	Los, MAFF CoCo, NFU FWAG, EN Wildlife Trusts	U	-----	-----					
<b>Progress</b> a) Environment Agency/ FWAG project set up. Draft advisory leaflet prepared. b) RASE project completed. c) Input completed for Flood Defence Maintenance Programme for the River Leadon. The River Chelt FAS Environmental Assessment has identified opportunities for river corridor improvement. Preliminary assessment of the River Frome downstream of A38 indicates need for feasibility study.										

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
3. Promote Managed Retreat. a) Conclude management agreement with Berkeley Estate. b) Identify other potential sites. c) Implement where possible	EA MAFF Berkeley Estate EA	Land- owners Co Co EN  IDBs	R	----	(-----)					Paul Bailey
<b>Progress</b> a) Revised terms have been agreed. Some reinstatement works still outstanding. b) & c) No further progress.										
4. Restore floodplain landscape: a) Identify pressured habitats and locations e.g. saltmarsh, wet grassland, reedbed. b) Identify sites where floodplain landscape can be reinstated e.g. planting and drainage guidance and maintenance c) Increase awareness of the character and value of floodplain landscape, e.g. leaflet/publication d) Implement landscape reinstatement projects on FP reaches of Cam, Frome, Chelt.	EA  EA  EA  EA	MAFF EN IDBs  MAFF Landowners EN,CCs  CCs, LAs CPRE  Landowners LAs	U  U  U  U	----  ----  .  .	-----  -----  .  .					Alan Churchward
<b>Progress</b> a) Areas identified through landscape appraisal, for example on the River Chelt. b) Part of the river rehabilitation project. See actions in issue 28. c) Rivers & Wetlands Best Practice Guidelines published. d) Future work.										

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
5. Investigate removal of redundant structures at Gloucester. (Cf Issue 25.2)	EA	Gloucs City & Councils, BR, Landowners	U	-----						Paul Bailey
<p><b>Progress</b>                      No progress due to model operated by H R Wallingford being used for other purposes. This investigation will be the last use of the model just prior to its demolition.</p>										

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
Develop terms of reference in the following areas:										
1. Landscape/Visual Quality a) Plan Landscape Appraisal programmes b) Implement c) Consult with all relevant agencies and authorities, e.g. CC, LAs, FA to establish guidelines and policy relating to rehabilitation	EA	LAs Conservation Groups/ interested parties BW FA FWAG	EA =50	----	----	----	----	----		Alan Churchward
<b>Progress</b> No further progress.										
2. Habitat Value a) Carry out survey required additionally to River Corridor Survey b) Consult with expert bodies c) Devise habitat rehabilitation strategy	EA	EN CC Wildlife Groups LAs	U  R R	----	----	----	----	----		Alan Churchward
<b>Progress:</b> River Corridor Surveys now completed. Process now superseded by nationally applied River Habitat Surveys. Habitat rehabilitation strategy is part of overall river rehabilitation strategy referred to in Action 6.										

**ISSUE 28 Rehabilitation of river corridors (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
<b>3. Uses &amp; Access</b> a) Survey and baseline data b) Set up User Forum and consult c) Develop recreational strategy	EA EA EA/ User Group EA	BW	R+U R+U R	----	5	----	----	----		Alan Churchward
<b>Progress</b> a) Recreation Study of the River Severn Lower Reaches published November 1996. b) Proposal put forward to extend renamed Avon Users Group to cover River Severn.										
<b>4. Cultural, historic and archaeological features</b> a) Investigate and appraise main river (Severn Estuary Archaeological Study) b) Formulate collaborative strategy.	EA	County Archaeologist B&GAS EH	R	----	7	----	----			Alan Churchward
<b>Progress</b> Severn Estuary Archaeological Study updated January - April 1997.										

**ISSUE 28 Rehabilitation of river corridors (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
5. Channel Geomorphology and Hydrology (a) Urban and (b) Rural i) Identify those reaches most in need of improvement (a & b) ii) Define strategy for recreating natural/improved channel (a&b) iii) Identify potential sites for de-culverting iv) Promote collaboration to open up urban river corridors, Cheltenham, Stroud, Gloucester (a)	EA	MAFF, CCs EN LAs Local Interest Groups Landowners			----	----	45			Alan Churchward
<p><b>Progress</b>                      Public consultation on options for River Chelt corridor improvement and rehabilitation was carried out in March 1997. Any expenditure will be linked to implementation of the River Chelt FAS with additional collaborative opportunities possible. Urban Rivers Rehabilitation project identified for Horsebere, Wotton, Didmore and Daniels Brooks as part of 98/99 project bids.</p>										
6. River Rehabilitation Strategy (Synthesis of Actions 1-5) a) Analytical Study of data collected b) Pilot Scheme and Programme c) Produce strategy for phased rehabilitation.	EA	As above	U	----	----	----				Alan Churchward
<p><b>Progress</b>                      Strategy for the River Alne has been produced. Further work is being undertaken on the Draft Regional Strategy.</p>										

**ISSUE 29 Competing requirements of river engineering and other uses**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Investigate the major sources of potential conflict	EA									Alan Churchward
a) Nature conservation: pressure on habitats.	EA									
i) Saltmarsh Monitoring		EN Wildlife Trusts RSPB	U	----	----	2	(-----)	(-----)		
ii) Breeding Wader Survey	EA		3	----			14			
b) Landscape: Landscape Appraisal Programme	EA		U	----	----	----	----	----		
c) Cultural Heritage (Severn Estuary Archaeological Study)	EA	LAs Archaeologists & Trusts User Groups Sports Council	U	----	----					
d) Recreation and Access: Seek opportunities to incorporate recreational facilities.	EA		U	----	----					
e) Consult with expert bodies, local groups and landowners	EA	EN MAFF Landowners	U	----	----					
<p><b>Progress</b></p> <p>a) i) Further year of saltmarsh monitoring carried out.                      ii) Joint English Nature/ Environment Agency project proposal for 98/99 to identify wetland sites.</p> <p>b) See Issue 28.1</p> <p>c) See Issue 28.4 and 29.2.</p> <p>d) See Issue 28.3; Binn Wall scheme included mitigation works at a cost of £50K.</p> <p>e) National Concordat signed between English Nature and the Environment Agency confirming thorough investigation and consultation on nature and conservation, heritage and landscape issues which might impinge on Agency promoted schemes at Rodley, Westbury, Oakle Street, Binn Wall 4, Lydney Dock Emergency Works.</p>										

**ISSUE 29 Competing requirements of river engineering and other uses (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
2. Baseline data and accessibility of data a) Survey as required additionally b) Continue to update and develop Severn Estuary Study database	EA EA	BW	U 25	----- 5	----- 5	----- 5	----- 5	----- 5		Alan Churchward
<p><b>Progress</b> a) Ecological and archaeological surveys have been carried out as part of the Environmental Assessment process on FAS cells identified in 29.1 (e) above.</p>										
3. Evaluate data and consultation a) Produce Best Practice Guidelines for Operational Works Service Level Agreements and Regional Guidelines also apply. b) Develop Design Criteria to allow compromise between efficient flood water conveyance and natural structure of channel: Cam, Frome, Leadon	EA EA	 LAS Landowners	R	----- -----	38 -----	13 -----	----- -----	----- -----		Alan Churchward
<p><b>Progress</b> a) Rivers and Wetlands Best Practice Guidelines published March 1997; reprint Feb 1998. b) Internal agreement reached to facilitate creation of buffer strips and planting and fencing alongside brooks. Discussion have been held with FRCA on Countryside Stewardship applications in relation to flood plain management.</p>										

**ISSUE 29 Competing requirements of river engineering and other uses (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
4. Public Interest Consultation via Environmental Statements(where appropriate)/Press releases/notice boards/etc.	EA	All	R	----	----	----	----	----	----	Alan Churchward
<p><b>Progress</b> Environmental Statements, Assessments, Issues or Scoping Reports have been published on Westbury, Cone Pill, Hempsted, Lydney Emergency, Longney, Binn Wall 4, Rodley, Chelt and Oakle Street. All Capital Schemes and larger Maintenance works now have regularly updated public display notices indicating progress and planned works.</p>										
5.Promote better liaison between EA and all interested parties.	EA	All	U	----	----	----	----	----		Alan Churchward
<p><b>Progress</b> All Capital Schemes and larger Maintenance works now have regularly updated public display notices indicating progress and planned works.</p>										

**ISSUE 30 was deleted in the Action Plan and amalgamated into Issues 29 and 31.**

**ISSUE 31 Development of recreational access**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Collaborative projects within Tewkesbury, Upton and other potential sites e.g. Hereford and Worcester CC Millennium Bid "H2000"	EA	BW Landowners	U	----	----	----	----	----		Alan Churchward
	H&W CC		U	----	----					
<b>Progress</b> Hereford and Worcester Millennium Bid "H2000" was unsuccessful.										
2. Continuation of Severn Way Project	EA	BW Landowners	R	----	----					Alan Churchward
<b>Progress</b> Severn Way leaflet to be launched nationally in March 1998.										
3. Investigation of potential cycle tracks	Sports Council Sustrans	EA	U	----	----					Alan Churchward
<b>Progress</b> No progress.										
4. Analysis of recreational use and development of nodal points with facilities such as parking, interpretation, etc.	BW LAs EA Police		R	----	----	----	----	----		Alan Churchward
<b>Progress</b> No progress.										

**ISSUE 31 Development of recreational access (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
5. Promote access to or along all rivers within catchment where appropriate and where opportunities arise: a) Increased availability, where practical, for disabled access. b) Additional 6 mooring sites between Worcester and Gloucester.	EA		R	----	----	----	----	----		Alan Churchward
	BW									
	EA BW		R	----	----	----	----	----		
	BW		U	----	----					
<p><b>Progress</b> No progress.</p>										
6. Liaise with FE to examine the role of water in recreational aspects of the Forest of Dean.	FE		U	---	---	---	---	---		Alan Churchward
<p><b>Progress</b> No progress.</p>										
7. Revision of Avon Users Handbook to include Lower Severn	EA	Sports Council		----	----					Alan Churchward
<p><b>Progress</b> Publication delayed until 1998/99 - to include River Severn as well.</p>										

**ISSUE 32 Protection of vulnerable species**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
<b>1. Shad</b> a) Preparation and adoption of Shad Conservation Strategy to include e.g identification and protection of spawning habitat, provision and assessment of use of fish passes b) Advise anglers on best practices for catch and return to reduce Shad deaths as a result of accidental catches.	EA	EN	5		----					Alan Churchward
	EA	S&T	U	----	----					
<b>Progress</b> a) Species Action Plan produced. b) Leaflet produced jointly with English Nature and Countryside Council for Wales 'Allis and twaite shad - a conservation message'.										
<b>3. Brown Trout</b> a) As above for Shad	EA	EN	5		----	----	----			Alan Churchward
<b>Progress</b> Policy prepared for protection of pristine populations in Upper Severn. Similar policy likely for Lower Severn.										

**Note** Action 2 was completed in 1995/96 with the designation of 'no go' areas for crayfish farms by MAFF and a policy re the introductions of crayfish was agreed by the Agency and MAFF.

**ISSUE 32 Protection of vulnerable species (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
4. Otter Development of otter habitats via the Severn Otter Project (cf. Issue 29)	EA Worcs Wildlife Trust BW	Others	65 (EA): 25 (Other Partners)	12 6	12 6	12 6	12 6	12 6		Alan Churchward
<p><b>Progress</b> Continued support for River Severn Otter Project (£12K per annum over 5 years).</p>										
5. Water Voles Contribute to the implementation of the EN Species Action Plan.	EA EN	Wildlife Trusts			----	4	----	----		Alan Churchward
<p><b>Progress</b> There is a collaborative project with the Wildfowl and Wetlands Trust, British Waterways and the Agency to set up displaced breeding population of water voles at Slimbridge (£3K). The Agency's contribution to Gloucestershire Biodiversity Audit for water vole populations and habitats is £1K.</p>										

**ISSUE 33 The management of the salmon and elver fisheries**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
<b>ELVERS</b> 1. Increased patrol work and prosecution of boat owners contravening the navigation legislation	BW		R	----	25	25	----	----	Ongoing	Alan Churchward
<b>Progress</b> Effective controls continue to prevent trawling. Liaison established with Police and British Waterways. Proposed byelaws to clarify law over use of boats and description of instruments is in consultation phase.										
<b>SALMON</b> 1. Prepare Salmon Management plan in liaison with Environment Agency Upper Severn area and other Environment Agency Regions (Re: Severn Estuary CMP)	EA	2	5		5					Alan Churchward
2. Cf Issue 20(7)	EA	30	----	----						
<b>Progress</b> Severn Management Plan due for consultation Spring 1998.										

ISSUE 34 Canal restoration

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
FROME 1. Restoration of Cotswold Canals	CCT	BW EA GCC MOD	4604	----	----	----	----	----		Julie Everard
<p><b>Progress</b> Principal concerns have been safeguarding the route and seeking sources of funding. The interim objective is restoration of Stroudwater Canal from Saul Junction to Stroud and engineering investigations on this are on-going.</p>										
2. Review of status of old connections and use of existing channels	EA		25				10			Paul Bailey
<p><b>Progress</b> Project due 1998/99</p>										
3. Appraisal of the impact of increased recreational use on nature conservation/ hydropower.	CCT EN BW Wildlife Trusts Landowners	EA EN	U	----	----	----	----	----		Alan Churchward
<p><b>Progress</b> No progress to report.</p>										

**ISSUE 34 Canal restoration (continued)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999 /2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
HEREFORDSHIRE & GLOUCESTERSHIRE CANAL 1. Restoration 2. Investigate use of river channels.	H&G CT									Paul Bailey
	H&G CT EA		U	----	---- 1.5	----	---- 10	----	Ongoing	
<b>Progress</b> Consultants appointed to carry out feasibility study for the canal restoration. Report due end of 1998.										

**ISSUE 35 Hydropower development**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. River Cam Protect flows and resources in the River Cam via operating agreements with hydropower users and millowners.	EA		U			----				Paul Bailey
<b>Progress</b> Improvements to method of operation (following discussions) negate the need for a formal agreement at Coaley Mill.										
2. River Frome Appraisal of 14 potential hydropower sites.	EA		U	----	----		4			Paul Bailey
<b>Progress</b> The initial investigation of 14 sites has been completed and a report prepared.										
3. Implement hydropower scheme at 1 site in catchment. Implement 3 further sites.	HA	EA	U U		----					Paul Bailey
<b>Progress</b> Revised proposal agreed but progress halted pending resolution of land issues.										
4. Feasibility of hydropower to be considered for all capital schemes.	EA		U	----	----	----	----	----		Paul Bailey
<b>Progress</b> No further sites identified from capital programme.										

**ISSUE 36 This was replaced by the Land Use Statement in Section 4 of the Action Plan.**

**ISSUE 37 Water Level Management Plans (WLMP)**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1. Produce WLMPs: programme as agreed: a) Chaceley Meadows b) Coombe Hill Canal c) Old River Severn d) Severn Ham e) Upton Ham f) Walmore Common  j) Upper Severn Estuary	EA	EN	R	----	----	----				Paul Bailey
	West Glos IDB	EN Landowners		----	----					
	South Gloucs IDB			----						
<p><b>Progress</b>                      The Upper Severn Estuary plan was finalised in July 1995.                      It has now been agreed that a Regional consultant will progress all sites to completion in 1998/99.</p>										

**ISSUE 38: Flood risk to the Gloucester-Sharpness Canal from the Rivers Frome and Cam**

ACTIONS	RESPONSIBILITY		TOTAL COST £K	1995 /96	1996 /97	1997 /98	1998 /99	1999/ 2000	FUTURE	EA ISSUE LEADER
	LEAD	OTHER								
1.Prepare an operating agreement for the Saul Junction overflow sluice.	BW	EA					-----			Paul Bailey
2.Review the flood risk and evacuation capacity of the canal.	BW	EA					-----	-----		Paul Bailey
3.Prepare and promote solutions to flood risk issues.	BW	EA						-----	-----	Paul Bailey

## **5. Future reviews**

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The Consultation Report will be revised when work on the Severn Vale Local Environment Agency Plan (LEAP) commences in June 1998. As discussed on page 3 the LEAP will address the current environmental issues when it is produced early next year. Relevant issues from this CMP will be included in the LEAP.