

**Bedford Ouse (Lower Reaches)
Catchment Management Plan**

First Annual Review
February 1995 - April 1996

ENVIRONMENT AGENCY - ANGLIAN REGION
PLANNING LIAISON (CENTRAL AREA)
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ENVIRONMENT AGENCY



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If you have any views or require any further information, please contact:

Brian Elsdon
Planning and Customer Services Manager (Central Area)
Environment Agency - Anglian Region
Bromholme Lane
Brampton
Huntingdon
Cambs PE18 8NE

Tel: (01480) 414581

Also available in this series:

Bedford Ouse (Lower Reaches) CMP Consultation Report (April 1994)
Bedford Ouse (Lower Reaches) CMP Action Plan (January 1995)

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Vision Statement for the Catchment

The Agency's vision for the Bedford Ouse (Lower Reaches) catchment is of a healthy and diverse water environment, managed in an environmentally sustainable way, balancing the needs of all users. Where significant environmental damage might occur but knowledge is incomplete, the Agency will adopt the principles of sustainable development and exercise a precautionary approach.

To achieve this vision, the Agency must work with or seek to influence central government, local government, industry, commerce, farming, environmental organisations, riparian owners and the general public. Successful management of the water environment requires consideration of a wide range of interests and requirements which may sometimes be in conflict. The competing requirements and interests of users and beneficiaries must be balanced.

Mission Statement

We will act as the Guardian of the Environment protecting and improving it for future generations by regulation and direct action.

We will operate openly and balance the interests of all who benefit from and use the environment and its resources by consulting widely before we take action.

We believe in an integrated approach to environmental management and the principles of sustainable development.

1.0 INTRODUCTION

The Environment Agency is a non-departmental public body established by the Environment Act 1995. The Agency has taken over the functions and responsibilities of its predecessors - this includes building upon the National Rivers Authority's Catchment Management Planning initiative. The Agency's functions cover such subjects as the management of radioactive and other forms of waste, industrial pollution control, the management of water, water resources, flood defence, freshwater fisheries and conservation. The Agency's principle aim is to protect and enhance the environment as a whole, in order to play its part in attaining the objective of sustainable development.

The process of Catchment Management Planning is used by the Environment Agency to allow informed decision making as part of the planning of river catchments, especially where one activity may have an impact on another elsewhere in the catchment. Through the involvement of local interests, the process realises the environmental potential of a catchment in terms of water quality, water quantity and physical features. The first stage is the production of a Consultation Report. This outlines the Issues within a catchment and Options for their solution. Following a period of consultation, an Action Plan is produced. This includes an Activity Plan for improvements to the water environment. It also outlines areas of work and investment proposed by the Agency and others.

An important part of the process is to monitor the Action Plan so as to review *actual performance* against *set objectives* and ensure that the plan continues to address relevant and significant issues in the catchment. This report summarises the progress made since the publication of the Action Plan (in January 1995) until March 1996.

The Environment Agency is committed to reviewing its CMPs, continuing contact with other interested parties and communicating a statement of progress. The Annual Review reports, of which this is the first for the Bedford Ouse (Lower Reaches) Catchment, are the Agency's media for doing this. The purpose of an Annual Review is to:

- report on achievements and progress in undertaking the agreed Action Plan activities;
- encourage a continued dialogue between parties responsible for action and ensure the continued delivery of results;
- report on changes in the activity programme;
- consider the future review of the Management Plan.

This report will primarily focus on the water environment and the progress of the existing Catchment Management Plan. The surface water catchment area covered is shown on Map 1. Waste and Integrated Pollution Control responsibilities and issues, which have not previously been considered within this process, are described in Sections 3.0 and 4.0.

1.1 - Map 1 - Catchment Area



1.2 Overview of the Bedford Ouse (Lower Reaches) Catchment

The Bedford Ouse (Lower Reaches) Catchment comprises that part of the River Great Ouse (together with its tributaries) between Kempston and Earith. The River upstream of Earith is also known as the Bedford Ouse. The Catchment covers 1556 sq km which includes a diversity of landscape types.

The Bedford Ouse flows generally in a north easterly direction. The rivers flow over a clay covered catchment, apart from the Hiz, Flit and Upper Ivel, which flow over the Chalk and Greensand rocks. The maximum elevation within the catchment is 184m above sea level and is to be found in the Chalk outcrop area south west of Hitchin. The Bedford area is 25 to 50m above sea level, with areas in the upper reaches of the sub-catchments being around 100m above sea level. The lowest lying land is close to sea level at Earith, Cambridgeshire.

The catchment lies within four counties, these in descending order of percentage population being Bedfordshire (47%), Cambridgeshire (40%), Hertfordshire (10%) and Northamptonshire (3%). The catchment has a population of 422,000 which is a density of 310 persons per km². 51% of the population is situated in the eight main towns of Bedford, Letchworth, Hitchin, St. Neots, Huntingdon, St. Ives, Biggleswade and Flitwick. The highest levels of population growth are expected in the Huntingdonshire District Council (DC) area (including Peterborough Southern Township) and the Fenland DC area where high local plan housing allocations are proposed. Two operational military air bases are situated at Wyton and Alconbury. Other MoD related establishments are located at Brampton, Thurleigh, Molesworth, Chicksands, Cardington and Henlow.

The area is well served by major road and rail networks which carry large volumes of through and commuter traffic. The major rail routes are the East Coast Main Line (WAGN) which passes through Hitchin, Biggleswade, St. Neots and Huntingdon and the Midland Main Line (Thameslink) which passes through Flitwick and Bedford. Both lines are served by British Rail Intercity and Network South East. The major road routes are the A1(T) and the A14(T).

1.3 Development and Planning

(i) The progress of development plans is given in the tables below:

COUNTY COUNCIL (CC)	STRUCTURE PLAN	MINERALS PLAN	WASTE PLAN
Bedfordshire	6 week public consultation period ongoing. Adoption anticipated November 1996.	Minerals & Waste - Adopted 2/96	see "Minerals"
Cambridgeshire	Adopted 12/95	Adopted 4/91	
Hertfordshire	Deposit anticipated July 1996. Public enquiry early 1997. Adoption anticipated end of 1997.	Public enquiry anticipated December 1996. Adoption December 1997.	Interim draft text on deposit. Public enquiry October 1996.
Northamptonshire	Consultation draft due late 1996. Adoption end of 1997.	Reporting to planning committee on 11 June 1996. Adoption soon after.	Deposit due December 1996 with publication of deposit plan. Public enquiry June 1997. Adoption June 1998.

DISTRICT COUNCIL (DC)	LOCAL PLAN STATUS
Bedford Borough Council	Consultation draft February 1995. Deposit available late summer 1996.
Mid Bedfordshire	Draft deposit late 1996. Public enquiry anticipated mid 1997.
South Bedfordshire	Adopted December 1995.
South Cambridgeshire	Adopted June 1993. Commencement of review about to start. Planning policy meeting on 8 May 1996.
North Hertfordshire	Adopted April 1996.
Huntingdonshire	Adopted December 1995.

DISTRICT COUNCIL (DC)	LOCAL PLAN STATUS
East Northamptonshire	Published list of Proposed Modifications in January following Inspector's Report. Adoption anticipated towards the end of the summer.
Stevenage BC	Awaiting decision of Herts CC deposit plan - anticipated July 1996. Will then start to review local plan.

(ii) *New Developments*

There are a number of new and completed road schemes within this catchment and their status is as follows:

- 1) **A1 Widening Programme** - the stretch from Baldock to Alconbury is a long-term scheme and detailed plans for the exact specifications may alter over the time period;
- 2) **Bedford Southern Bypass** - this scheme is due for completion by September 1996;
- 3) **Baldock Bypass** - this is still awaiting planning determination and is, at the present time, being reviewed by the Secretary of State following the public inquiry last May;
- 4) **Bedford Western Relief Road** - this is a long-term scheme which is still under discussion. Following a similar route, a consortium of developers have submitted a planning application for a single-lane carriageway with Beds Borough Council;
- 5) **Arlesey-Stotfold Bypass** - the bypass is now open.

The future development plans of RAF Alconbury and USAF Chicksands may become a potential issue for the next Annual Review (see Issue 14).

2.0 SUMMARY OF PROGRESS

2.1 Notable Occurrences and Achievements

On the 1 April 1996 the National Rivers Authority joined forces with Her Majesty's Inspectorate of Pollution, the Waste Regulation Authorities and parts of the Department of the Environment to become the Environment Agency. It is our aim to identify objectives for environmental protection and improve the land, air and water environments for the benefit of all.

The Environment Agency has carried out more than 100 pollution prevention visits in Letchworth alone, ensuring that key industry takes responsibility for its treatment of the environment.

The public launch of the preferred option for the River Hiz Low Flow Alleviation Scheme took place in September 1995. Since that date, pipelines have been laid by Three Valleys Water Company to enable water to be supplied from their pumping stations at Wellhead on the River Hiz and Oughtonhead and Offley Bottom on the River Oughton to support river flows during dry periods. The additional water is expected to improve the public amenity value of both the Rivers Hiz and Oughton. Works have also been put in place to enable the control of water levels in the Oughtonhead Common Wetland. The completed scheme is due to be opened in June 1996.

2.2 Notable Disappointments

Hen Brook in St. Neots persistently suffers from poor biological quality despite a spate of pollution prevention visits at industrial areas in St. Neots (see Issue 10). A new series of pollution prevention visits are therefore planned for Fox Brook, which flows into Hen Brook (oily discharges have occurred from surface water sewers discharging into the Fox Brook, which serve the Station Road area). The reason for dissolved oxygen failures appears to be stagnation as a result of low flow. During periods of low flow in the Hen Brook, the water level in the River Great Ouse is such that it causes the water in the Hen Brook to back up. The Agency therefore plans to carry out a level survey in 1996 to determine whether there is a correlation between the gradient of the watercourse and the levels of dissolved oxygen.

Blue-Green Algal Blooms have continued to pose a problem both in riverine and stillwater environments. The most significant occurred during the late summer and autumn of 1995, when a massive bloom of blue-green algae appeared in the River Great Ouse. The bloom originated above Bedford and eventually affected the whole of the river to Earith and beyond into the tidal river (see Issue 17).

3.0 WASTE ISSUES

Responsibility for the management of all waste issues rests with the Environment Agency. In the establishment of Waste Management Facilities, there will be Agency involvement at three levels:

- i) On the Waste Local Plan which each CC is required to produce under the Town and Country Planning Act 1990. These address the general suitability of locations for waste management activities;
- ii) On the Planning Application for an individual site which allows considerations of the principle of a waste management activity at a particular location; and,
- iii) On the Site Licence which, at application stage, can further consider the desirability of a waste management activity at a particular location and if granted, then covers the operation of the site and includes aftercare considerations.

A wide range of operations require a licence, e.g. transfer stations, waste storage facilities and scrap yards (all of which have the potential to pollute). In general the greatest threat is from waste landfill sites.

In recent years there has been a major change in the philosophy of landfilling waste. Previously a policy of 'dilute and disperse' was applied. This assumed that any leachate generated could be accepted in an aquifer provided that no local use was threatened. Nowadays, all new sites taking any potentially polluting water must be designed on a containment basis in order to protect all groundwaters, as required by the EC Directive (80/68/EEC) on the protection of groundwater quality. This also has sympathy with the aspirations of the Agency's Groundwater Protection Policy.

In line with National Strategy, the Agency will encourage a minimisation in the amount of waste requiring disposal. This will be undertaken by such means as a programme of visits to waste producers seeking changes in philosophy, where necessary, and assisting in moves, where possible, towards waste avoidance, re-use or recycling. Waste disposal is concentrated in a few large sites within the catchment and it is these that may pose a longer term risk to water quality rather than a large number of small site.

Currently the main sites for domestic waste are at Buckden, Stewartby, Brogborough, Elstow and Sundon with a newly licensed, but as yet non-operational, site at Godmanchester. The sites are operated satisfactorily from a regulatory point of view but some have a history of causing local odour problems. A leachate treatment plant is planned for the Stewartby site to address leachate management problems. Currently there is no active treatment of leachate on the Brogborough site.

The Agency will ensure that all waste management activities are regulated to the highest standards and will combine resources to seek a solution to local odour problems.

4.0 IPC ISSUES

Integrated Pollution Control (omitted from glossary at back!)

Responsibility for regulating emissions from the most significant 'polluting processes' sites lies with the Agency. It is the aim of the Agency to ensure that the best available techniques not entailing excessive costs (BATNEEC) are deployed to prevent pollution in the first instance. Where complete pollution prevention is not possible there is a requirement to minimise pollution which may be caused by releases to the environment by using the best practicable environmental option (BPEO) available in selecting the media (be it air, land or water) to which these substances can be released so as to minimise the environmental effect.

There are currently eleven organisations within the catchment area, operating sixteen processes authorised by the Agency as IPC processes under Statutory Instrument 1991:472 as amended.

The major processes are listed in the table below:

NAME	LOCATION	TYPE OF PROCESS	PRODUCTS OF COMBUSTION	SO _x	FI	VOC'S	NO _x	CO	PARTICULATES
Hanson Brick Co	Stewartby, Bedford	Brick Making	■	■	■				■
Hanson Brick Co	Kempston, Bedford	Brick Making	■	■	■				■
National Power	Little Barford	CCGT Power Station	■						
Texas Instruments	Bedford	Semi-Conductor Manufacture				■			
Escol Products Ltd	Huntingdon	Vitreous Enamel Production	■		■		■		■
Grafham Carbons Ltd	Perry	Carbon Regeneration	■	■			■	■	■

Key: CO - Carbon Monoxide
 FI - Fluoride
 NO_x - Oxides of Nitrogen
 SO_x - Oxides of Sulphur
 VOCs - Volatile Organic Compounds

In authorising a process the Agency is required to ensure that statutory Environmental Quality Standards (EQS's) are not exceeded. Although standards have been established for releases to air and water, there are no such standards for depositions to land.

There are no nuclear sites within the catchment area. Radioactive sources registered under the Radioactive Substances Act 1993 are used for a variety of reasons at premises throughout the catchment. Relatively few of these involve releases into the environment for which authorisations under the legislation are necessary. Typically the larger hospitals with diagnostic or therapeutic uses of radioactivity are authorised for discharge into the environment.

5.0 - ACTIVITY PLANS

5.1 - Map 2 - Issues of the Activity Plans



ACTIVITY PLANS

5.2 Water Quality

5.21 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
1. Impact of Unsewered Villages - River Kym, Alconbury Brook and Ellington Brook Catchments	Need to survey unsewered villages to establish effect on water quality of septic tank overflows. The only effective means of solving the problem is for the installation of first time sewerage schemes	*	*			EA/AWS/DC	WQm	N/A	Biological and chemical surveys were completed in 1995. A priority list for sewerage schemes has been prepared.
2. Alconbury Brook: Headwaters to Ellington Brook - Failure to meet REC 4 Target for BOD and DO	Poor water quality during low flow summer period - investigate cause of low DO and high BOD		*	*		EA	WQm	N/A	This stretch is now compliant with the REC 3 target for BOD and it marginally fails for DO. Investigations showed that water quality is affected in periods of low flow. Downstream of Alconbury, quality is affected by Alconbury STW, low flow and duckweed cover. The headwater stretch is no longer monitored. No further action planned.
3. River Til/River Kym: Headwaters to Bedford Ouse - Failure to meet RQO's	Investigate cause of low DO, high BOD, NH ₃ during low flow summer period and the impact of the impoundments in Kimbolton	*	*	*	*	EA	WQm	N/A	This stretch now only fails to meet REC 3 target for DO. Water quality is affected by periods of low flow. The deeper slow flowing stretches have complete duckweed cover, causing low DO levels.
4. Impact of Kimbolton STW on River Kym - Failure to meet REC 3 target	Achieved by improvements to the STW. A feasibility study is needed to identify the best options	*	*	*		EA/AWS	WQm	N/K	An investigation into the cause of low DO is planned. Additional river flow data will also be collated in 1996.

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
5. Brampton Brook: Buckden Waste Disposal Site to Bedford Ouse - Failure to meet RQO's for BOD, NH ₃ and DO	A treatment plant was constructed in 1994 to treat the leachate from the site. Continue to review impact of Brampton STW	*	*			Waste Disposal Site Operator	WQm	N/A	Now complies with REC 3 target for BOD and NH ₃ , but fails for DO. Impact from Buckden Waste Disposal Site has been reduced as a result of the construction of a leachate treatment plant and capping of Station Farm South landfill. Further investigations are being carried out.
6. Impact of Marston Moretaine STW on Marston Brook - Failure to meet REC 4 target	Further investigation of the impact of the STW is required. Future improvements in effluent quality will be subject to National agreements with AWS/OFWAT	*	*	*	*	EA/AWS	WQm	N/K	The original monitoring report at the STW outfall was unrepresentative and has been dropped. An alternative point has been located at the inlet to Stewartby Lake and is now used to assess the impact of the STW. Routine monitoring will continue.
7. Marston Brook /Elstow Brook: Stewartby Lake outfall to Wootton Brook - Failure to meet REC 3 target for Ammonia	Investigate occurrence of high ammonia to establish the source.	*	*			EA	WQm	N/K	Now complies with REC 3 target. Original cause of the failure may have been decomposing algal blooms released from Stewartby Lake. Routine monitoring will continue.
8. Millbridge / Common Brook: Gamlingay to River Ivel - Failure to meet REC 3 target for DO, total and unionised NH ₃	Improve monitoring and survey to investigate any unauthorised discharges	*	*	*	*	EA	WQm	N/A	The lower stretch from Galley Hill to the R. Ivel now complies with the REC 3 target. The upper stretch from Galley Hill to Gamlingay STW just fails to meet REC 3 for DO. Investigations completed and a chemical survey is planned for 1996.
9. Steppingley Brook: Station Road, Ampthill to River Flit - Failure to meet REC 4 for Ammonia	Further investigation of the quality and quantity of water upstream of Flitwick STW is required. Expenditure on STW improvements will be subject to National agreements with AWS/OFWAT	*	*	*		EA/AWS	WQm	N/K	Now complies with REC 4 target. Flitwick STW effluent quality has improved over the last eighteen months. Routine monitoring will continue.

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
10. Hen Brook - Failure to meet RQO's and poor Biological Quality	Undertake pollution prevention visits at industrial areas in St Neots to investigate impact of surface water sewers		*	*	*	EA/AWS	WQm	N/A	Fails to meet REC 3 target for DO. Pollution prevention visits carried out on 16 industrial sites within the catchment. Further water quality improvements unlikely due to the urban character of catchment.
11. Impact of Barton-Le-Clay STW on Barton Brook - Failure to meet REC 3 target	Recent improvements to the STW should result in improvements. Continued monitoring is required to ensure compliance with water quality targets	*	*	*	*	EA/AWS	WQm	N/K	Now meets REC 3 target, reflecting improved effluent quality from new STW.
12. Pix Brook: Headwaters to River Ivel - Failure to meet REC 4 for BOD upstream and total NH ₃ downstream of Letchworth STW and poor Biological Quality	Survey with AWS to monitor surface water discharges and establish the impact of industrial area. Pollution prevention visits required	*	*			EA/AWS	WQm	N/A	Now meets REC 4 target. Pollution prevention visits have been made to 106 sites. Letchworth STW effluent quality has also improved.
13. Impact of Storm Sewage overflows and Surface Water Discharges	Identify significant discharges and monitor	*	*	*	*	EA/AWS	WQm	N/A	Priority list identified and agreed with AWS.
14. Ministry of Defence bases	Continue to establish a close liaison with MoD sites and survey current pollution risks. Improve STWs to ensure compliance with standards required and improve pollution control practices	*	*	*	*	EA/MoD	WQm	N/K	Improvements to RAF Henlow STW were completed in 1995. Improvements are planned for RAF Wyton STW. Pollution prevention inspections were completed at RAF Brampton, Alconbury and Chicksands. No further action planned.

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
15. Landfill sites: -Marston Vale	Consultation to ensure regulation of future developments and waste disposal operations	*	*	*	*	EA	WQm	N/A	Regulation of waste is now the responsibility of the Environment Agency.
	- Flitwick Containment of leachate under the site. Remedial measures taken to allow site to be reinstated, sealed and developed	*	*			Site Operator	WQm	N/A	Site owner has commissioned further investigation work to establish extent of pollution and remedial measures necessary to allow for redevelopment.
16. Eutrophication	Continued review of nutrient data, undertake investigation of algae and aquatic plant communities is needed for the eutrophic status of designated Sensitive Area. Develop programme for nutrient reduction, possibly STW under EC UWWTD	*	*	*	*	EA/DoE/AWS	WQm	>300 per annum	A review of nutrient data and a survey of aquatic plants continue. The data will be used for the review of Eutrophic Sensitive Areas in 1997. STWs may have to remove phosphate.
17. Blue green algae	Research programme to produce Action Plans to advise on management strategies to control blooms is underway. Continue reactive sampling. Phosphate Control at STW for compliance with the UWWTD may help to reduce the frequency of blooms	*	*	*	*	EA/AWS/Lake Owners	WQm	N/K	A working group with representatives from EN, AWS and the Agency has been set up to produce a Blue-Green Algae Action Plan for Grafham Water. Reactive sampling continues.

Water Quality - Groundwater**Existing issues**

ISSUES	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
18. Nitrate Sensitive Areas	Continued monitoring, modelling of data on nitrate levels. Increased publicity reduces pollution risks from nitrate usage	*	*	*	*	MAFF/EA/Farmers	WQm	N/A	The Nitrate Sensitive Area at Slip End has now been designated a Nitrate Vulnerable Zone (NVZ). Farmers can apply for a new grant introduced by MAFF for improvements in effluent handling and storage.
19. Groundwater contamination: Baldock Road, Letchworth.	Investigate sources of solvent contamination and continued monitoring combined with pollution prevention visits on the industrial estate. Contaminated land investigation and remediation on areas of contaminated land	*	*	*	*	EA/Three Valleys Water Industry	WQm	N/A	Investigations to identify the sources of solvent contamination, including over 100 pollution prevention visits in the surrounding area, have so far proved inconclusive. Monitoring of contaminant levels in the groundwater continues on a twice yearly basis.

• Action to be carried out
 Shade - Completion of Action

5.22 *New Water Quality Issues*

NEW ISSUES	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
Pix Brook: Letchworth STW to River Hiz; failure to comply with EC Dangerous Substances Directive (76/464/EEC) for List II Copper.	Liaison with AWS to ensure adequate trade effluent controls are introduced. Analysis of monitoring data and review Letchworth STW consent.	N/A	*	*	*	EA/AWS	WQm	N/A	Copper concentrations exceeded the target in 1994 and 1995. A phased consent introducing control for copper from Letchworth STW was issued in April 1996.
Toxic blue-green algal bloom in River Great Ouse in 1995.	Reactive monitoring to investigate the source and nature of algal blooms. The introduction of phosphate control at STW (for UWWTD) may help to reduce the frequency of blooms.	N/A	*	*	*	EA	WQm	N/A	A blue-green algal bloom occurred in the River Great Ouse between August and September 1995. Toxic surface scums were recorded at Kempston, Cardington Sluice and Eaton Socon. The incident attracted widespread media coverage and angling clubs, abstractors and the public were notified of the risks.

• Action to be carried out

5.3 Water Resources

5.31 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
20. Future demand for abstraction cannot be met from surface water	Effective demand management such as leakage control by PWS and industry		*	*	*	EA & Licence Holders	WRm	N/K	<i>Ongoing</i> to increase availability of water supply without new supplies being developed.
	Increase use of winter stored water. Increased availability of water without new supplies being developed		*	*	*	EA & Licence Holders	WRm	100 pa	<i>Ongoing</i> to reduce pressure on summer resources. Potential to create conservation habitat.
	Several options were considered as part of the Regional Water Resources Strategy published in September 1994: such as <i>relaxing Grafham refill constraints, additional intake to Grafham at Brownhill and transfers from Severn Trent through the canal system.</i>				*	EA/PWS	WRm	N/K	Future demand projections for public supply indicate that existing resources are adequate to the current planning horizon. Useful preliminary studies have been carried out to assess general feasibility but no further work is currently planned.
21. Future demand for abstraction cannot be met from existing groundwater sources	Re-evaluation of groundwater resource allocation to the environment	*	*	*	*	EA	WRm	97.5	Re-evaluation of groundwater resource of Bedford Oolite. During 1995/96 six boreholes were drilled and records of water levels have begun.

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
22. Improve availability of summer resources for the Middle Level drainage area	Earith transfer: improve reliability by lowering cessation level <i>and ensure that best use is made of transfers from the R. Nene.</i>		*			EA	WRm	<88	This will become an issue for the Old Bedford Plan (expected May 1997). The water in excess of the present cessation level at Earith is already licensed as the Middle Level Transfer Scheme and available for irrigation. Future reliability will depend on water resources from the River Nene - an Agency project team has reviewed its availability for transfer and developed an operational control policy to maximise transfer without unacceptable impact upon the river.
23. "In-River Needs" are not quantified and Minimum Acceptable Flows need to be defined	Carry out extensive ecological studies throughout the catchment				*	EA	WRm	N/K	<i>Future Project</i> - no action is planned during this timescale
24. Catchment areas for wetland and washland sites of conservation value need to be defined	Carry out hydrological, hydrogeological and ecological studies				*	EA	WRm	N/K	<i>Future Project</i> - no action is planned during this timescale
25. Re-evaluation of the groundwater resources allocated to the environment	Carry out extensive ecological, hydrological and hydrogeological studies throughout the catchment				*		WRm	N/K	<i>Future Project</i> - no action is planned during this timescale

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
26. River support and alleviation of low flows in the River Hiz	Surveys were completed in 1994 to assess the extent of low flow problems and to establish the required "flow" regime. It is aimed to install a river support scheme using boreholes	*	*			EA	WRm	106	The river support scheme has been installed and will be operational for 1996/97.

* Action to be carried out
 Shade - Completion of Action

5.32 *New Water Resources Issues/Activities*

A need to measure the flow at Offord has been identified. This will be the Environment Agency's responsibility and will involve designing and installing an Ultrasonic Gauging Station. This will enable us to provide a more accurate and continuous measurement of flow. It will also enable the Agency to improve the management of resources including the regulation of abstraction by AWS at Offord. The cost of this project will be £40k and work is scheduled for completion this year.

5.4 Fisheries

5.41 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
27. Habitat improvements to tributaries and back channels of Bedford Ouse	Improve instream riffle recharge, current deflectors and improved margins	*				EA	FRCNm	23	Four pairs of croys installed in the New Cut in March 1996 along with selective pollarding to improve habitat diversity. Collaboration with Bedfordshire Borough Council.
28. Restoration of Bedford Ouse dace populations	Rehabilitation of the dace population in the Bedford Ouse Rivers which had declined as a result of drought years	*				EA	FRCNm	5	Surveys undertaken during 1995. Reintroduction of juvenile dace has led to a stabilisation of the population. Action complete - no further introductions are proposed.
29. Enhancement of the barbel population	To increase the distribution of barbel within this catchment by re-stocking into areas of weir pools and fast flowing back channels		*			EA	FRCNm	2	Barbel re-stocking has taken place for three consecutive years at the New Cut and the River Ivel. Due for completion in December 1996.
30. Creation of off-river refuge areas between St Ives and Earith	The quality of the fishery between St Ives and Earith is linked to poor marginal cover and a lack of backwaters. Creation of off-river refuge areas should help enhance production and provide shelter in flood conditions	*	*			EA	FRCNm	20	Some extensions to the Pike and Eel Marina in recent years have helped improve off-river areas. The 1995 survey showed considerable improvement to coarse fish populations between St. Ives and Earith.

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
31. Provision of fish passes	Consideration should be given to the provision of fish passes to any structures undergoing major refurbishment				*	EA	FRCNm	N/K	Consideration being given by the Flood Defence Department to the replacement of Brownhill Stauch.

* Action to be carried out
 Shade - Completion of Action

5.42 *New Fisheries Issues/Activities:*

The replacement of Tempsford Weir on the River Ivel is currently undergoing consideration. Consultation is taking place with relevant Angling Clubs and the Inland Waterways Association to assess the way forward.

5.5 Recreation

5.51 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
32. Improved canoe portage facilities around navigation structures	To carry out works that will ease the handling of canoes around navigation structures improving the service provided by the Agency where they are the statutory navigation authority	*	*	*	*	EA	FRCNm	12	We will continue to provide access for canoes as and when we refurbish our structures.
33. Creation of an area for fishing by anglers with disabilities	To create an area in which organised angling such as a small fishing match could be undertaken by disabled anglers. To generally improve/ease access to Agency owned land	*	*			EA/Local Authority	FRCNm	6	We have carried out an assessment of our sites and are still looking for instalment opportunities. The Agency's Recreation Facilities Design Manual is available to give advice to Fishery Managers wishing to install disabled access.
34. Demand for wider access to the countryside	To work in conjunction with others on collaborative projects to improve public access to water related recreational activities such as footpaths, bridleways and cycle tracks	*	*	*		EA	FRCNm	N/K	We are continuing to explore opportunities for wider countryside access.

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
35. Development of interpretation boards and centres around water-based recreational areas	Construction of interpretation boards to provide general public with useful information to enlighten them as to the wildlife and historical areas of interest and the Agency's involvement in these			*	*	EA	FRCNm	5	The Agency have collaborated in the production of a leaflet on riverside footpaths in the Hitchin area with Countryside Management Services.
36. Creation of safe stable fishing platforms in liaison with angling clubs	Advise and guide clubs on standard method and designs of construction by them of angling platforms	*	*	*	*	EA/Angling Clubs	FRCNm	N/A	Advice has been given to Angling Clubs and we are also able to draw upon our Recreation Facilities Design Manual.

* Action to be carried out

5.52 *New Recreation Issues/Activities*

There are currently no new *Recreation Issues* or *Activities* planned.

5.6 Conservation

5.61 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
37. River restoration	River restoration by proactive conservation projects or during flood defence maintenance works. Improvements to both instream and bankside habitats	*	*	*	*	EA	FRCNm	20	Improvements have and will continue to be achieved through the routine flood defence maintenance programme. We have also completed a Capital Project at Arlesey Moat in the Ivel Valley catchment, involving dredging and vegetation management. This has successfully improved the habitat for several important species at this site.
38. Degradation of the traditional lowland landscape	Collaborative work involving diverse projects recreating grassland, flood meadows and the management of riverside trees	*	*	*	*	EA/EN/ Huntingdonshire DC Cambs Wildlife Trust	FRCNm	20	This year we are undertaking a Capital Project aimed at developing a management strategy for willows along the River Great Ouse.
39. Examination of the weed control regime	Examine and if necessary modify the weedcutting regime to minimise environmental damage and maximise benefits	*	*			EA	FRCNm	N/K	The weedcutting regime will be reviewed this year.

* Action to be carried out

5.62 New Conservation Issues/Activities

- i) The UK government and the Agency's commitment to sustainability and biodiversity will be directed through the implementation of the 'UK Biodiversity Action Plan'. At a local level biodiversity will be given consideration in all relevant activities through input into *Local Biodiversity Action Plans* (LBAPs). These will be prepared by a number of 'champion' bodies such as County Wildlife Trusts, English Nature, the RSPB, Local Authorities and the Agency. Each champion will act as a facilitator and stimulate action in taking forward the plan. LBAPs will take account of national and local priorities and will reflect the values of local people and local conditions with the aim of conserving and enhancing biological diversity within the UK.

ii) **Water Level Management Plans (WLMPs) -**

These are an initiative originally developed by MAFF in collaboration with English Nature, the Environment Agency and the Internal Drainage Boards (IDB's). The Agency will be responsible for preparing plans for five SSSI's within this catchment, as follows:

- | | | | | |
|----|-----------------------------|---------------------|-----------------------------------|----------------------------|
| 1) | <i>Bury Fen -</i> | <i>Low Priority</i> | <i>to be completed March 1998</i> | |
| 2) | <i>Houghton Meadows</i> | <i>Low Priority</i> | <i>to be completed March 1998</i> | |
| 3) | <i>Little Paxton Pits -</i> | <i>Low Priority</i> | <i>to be completed March 1998</i> | |
| 4) | <i>Portholme Meadow -</i> | <i>Low Priority</i> | <i>to be completed March 1998</i> | |
| 5) | <i>St. Neots Common -</i> | <i>Low Priority</i> | <i>to be completed March 1998</i> | at a cost of £3k per plan. |

These plans aim to balance all the water level requirements of the different activities which can affect the nature conservation value of the area. Any recommendations will be considered in future CMP/LEAP reviews.

Although located upstream, the Ouse Washes have an impact upon this catchment. Flooding of the Washes from the River Great Ouse is controlled by the operation of the Earith Sluice. A WLMP (completed March 1996) and strategies for flood control of the Ouse Washes have been completed.

- iii) English Nature is progressing an integrated approach to nature conservation through the development of Natural Areas. River valleys and wetland habitats will form an important part of this approach. The CMP/LEAP process will be used as a key mechanism for progressing and developing these initiatives.

5.7 Navigation

5.71 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
40. Boat traffic congestion at locks during the summer period	Lock automation, lock pen enlargement and cooperation with local authorities to achieve development of moorings			*	*	EA	FRCNm	150	The current programme of lock enlargements shows Eaton Socon due for works in 1997/98. The other planned enlargements are outside the time-scale of this plan.
41. River Ivel navigation reopening	Carry out feasibility study to assess current status of navigation on the river and cost/benefits of improvements				*	EA	FRCNm	15	The River Ivel Navigation is to some extent being considered as a New Issue under the fisheries section. There has been no progress to date on establishing the current status of the navigation.

* Action to be carried out

5.72 New Navigation Issues/Activities

As we automate locks there has been a concurrent rise in vandalism problems to the apparatus. This year we hope to address this issue at two trial sites within the catchment at a cost of approximately £4k, with the instalment of prototype security cabinets.

5.8 Flood Protection

5.81 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
42. Assessment and execution of main river works	Assess and execute works in Main River such as refurbishment and rehabilitation of embankments and structures	*	*	*		EA/Riparian Owners/Local Authorities	FDm	N/K	Priorities identified and undertaken within annual programmes, i.e. Ivel Banks Stage 1 and Hemingford Sluice refurbishment.
43. Standard of service for flood protection	To assess the area at risk from flooding, the effective standard of service and the target standard of service		*	*		EA	FDm	N/A	Computer systems have been delivered. Delays due to software difficulties.
44. Brownhill Stauch	Refurbishment of sluices		*			EA	FDm	110	Project downsized due to funding constraints.
45. Hemingford Flood Bank	Reprofiling and seepage control				*	EA	FDm	100	Priority reduced and rescheduled within long-term capital programme for 2005/6.
46. Houghton Structures	Refurbishment of control weirs		*			EA	FDm	253	Works programmed for 1996/97 are at risk due to lack of Flood Defence benefits.
47. Offord spillway modification	Structure refurbishment to allow increased throughflow	*				EA	FDm	20	Refurbishment completed 1995/96.
48. Bedford town flood defences	Subject to feasibility study and full appraisal of costs and benefits				*	EA	FDm	>100	No change.

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
49. Tempsford Sawmills	Subject to feasibility study	*	*	*		EA/Landowner	FDm	N/K	No change, limits of feasibility study extended.
50. River lvel embankments	Subject to study of options for refurbishment works	*	*	*		EA	FDm	335	Project downsized due to feasibility study with localised defects repaired within maintenance programmes for 95/6, 96/7 and 97/8.
51. Riseley flood protection	Subject to feasibility study and full appraisal of costs and benefits	*	*			EA	FDm	50	No change.
52. Kimbolton flood protection	Subject to feasibility study and full appraisal of costs and benefits	*	*	*		EA	FDm	112	Works programmed for 96/7. Stonely flood protection - New complimentary project, due to Kimbolton feasibility study (expected 97/8).
53. Non-main river flood protection	Investigate non-main river flooding and implement alleviation works subject to redesignation of non-main river as Main River				*	EA/IDB/DC/Riparian Owners	FDm	40	No change.

* Action to be carried out
 Shade - Completion of Action

5.82 New Flood Protection Issues/Activities

There are currently no new *Flood Protection Issues* or *Activities* planned.

5.9 Development Control

5.9.1 Existing Issues

ISSUE	ACTION	95/96	96/97	97/98	FUTURE	RESPONSIBILITY	AGENCY PROJECT LEAD	COST (£k)	PROGRESS
54. Agency as a statutory consultee in development plan process aims to preserve and enhance water resources, water quality, flood defence standards, conservation & recreation by the use of model policies	Adoption of Agency model policies in Local Authority Structure and Local Plans		*	*	*	EA	PLm	N/A	<i>Ongoing</i> - since the Action Plan was produced one Structure Plan and three Local Plans have been adopted. We have also been consulted on the formulation of four Structure Plans and eight Local Plans.
55. The impact of developments on water resources is becoming a high profile issue as water availability decreases	Amend planning application forms to include water supply source		*	*	*	EA/LPA	PLm	N/A	<i>Ongoing</i> - the Agency continues to encourage Local Planning Authorities to include water issues on their application forms.
56. New roads and bypasses	The Environment Agency is consulted by the Highways Agency and recommends measures to ensure pollution prevention and flood protection measures in all road proposals and ensure conservation interests are protected and enhances with all road proposals	*	*	*	*	EA/Highways Agency	PLm	N/A	The Environment Agency provides advice and guidance to the Highways Agency on all road schemes.
57. Section 105(2) Survey, Water Resources Act 1991	The collection of hydrological and survey data to establish the flood plain limits and tidal inundation areas		*	*	*	EA	PLm	N/K	No work planned in this catchment but the Agency are setting up three test sites in the Anglian Region and the collection of data is being undertaken by Posford's Consulting Engineers.

* Action to be carried out

See 1.3 Section (ii) for details of new developments.

6.0 FUTURE REVIEWS

We will review progress again next year and aim to publish our Second Annual Review of the Bedford Ouse (Lower Reaches) Catchment in April 1997. A major revision of the Consultation Report is currently not expected until the year 2000 when a Local Environment Agency Plan (LEAP) will be prepared to incorporate air, land and water environments, setting out a common vision for the management of the environment as a whole.

To improve future reviews, readers are asked to tell us of any noteworthy information on activities which would be of interest to others in the catchment. This will keep the Environment Agency informed and ensure that all the news on progress and activities is disseminated properly and widely through the Annual Review process.

Thank you for your interest in the Bedford Ouse (Lower Reaches) Catchment. As this review shows, the Agency and others have made considerable progress towards addressing the activities stated in the Action Plan. The Agency hopes that this valuable work can continue in the future.

PLEASE LET US KNOW OF YOUR VIEWS AND ACTIVITIES.

APPENDICES

Abbreviations

AWS -	Anglian Water Services Limited
BAP/LBAP -	Biodiversity Action Plan/Local Biodiversity Action Plan
BATNEEC -	Best Available Technique Not Entailing Excessive Cost
BPEO -	Best Practicable Environmental Option
CC -	County Council
CMP -	Catchment Management Plan
DC -	District Council
DO -	Dissolved Oxygen
DoE -	Department of the Environment
ECUWWTD -	European Community Urban Waste Water Treatment Directive
EA -	Environment Agency
EN -	English Nature
FDm -	Flood Defence Manager
FRCNm -	Fisheries Recreation Conservation & Navigation Manager
IDB -	Internal Drainage Board
LEAP -	Local Environment Agency Plan
LPA -	Local Planning Authority
MAFF -	Ministry of Agriculture Fisheries and Food
MoD -	Ministry of Defence
N/A -	Not Applicable
N/K -	Not Known
NH ₃ -	Ammonia
NSA -	Nitrate Sensitive Area
NVZ -	Nitrate Vulnerable Zone
PLm -	Planning Manager
PWS -	Public Water Supply
SSSI -	Site of Special Scientific Interest
STW -	Sewage Treatment Works
WLMP -	Water Level Management Plan
WQm -	Water Quality Manager
WRm -	Water Resources Manager

Glossary -

Biodiversity	The variety of life on Earth or any given part of it.
BOD	<i>Biochemical Oxygen Demand.</i> Measure of the breakdown of organic matter.
REC	<i>River Ecosystem Classification.</i> A use related classification of water quality in 5 classes.
Structure Plans	A structure plan is a written statement of the County Council's general policies and proposals in respect of the development and use of land in their area. The structure plan deals with the major planning issues for the area and sets out broad policies and proposals.
Local Plans	Local plans elaborate the broad policies and proposals of structure plans in more detail relating them to precise areas of land and thus providing the detailed basis for both positive and regulatory planning. A local plan should guide most day-to-day planning decisions.
Sustainable Development	"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Report, World Commission on Environmental Development, 1987).

Project Team -

Julie Barker
Anthony Clayton
Michelle Doyle
Brian Elsdon
Mike Evans
Iain Finnigan
Sarah Robson
Kevin Rutterford
Mike Sargeant
Nigel Taylor
David Young

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MANAGEMENT AND CONTACTS:

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

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

Rivers House, Waterside Drive, Aztec West, Almondsbury, Bristol BS12 4UD
Tel: 01454 624 400 Fax: 01454 624 409

ENVIRONMENT AGENCY REGIONAL OFFICES

ANGLIAN

Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

SOUTHERN

Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 820 692
Fax: 01903 821 832

NORTH EAST

Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

SOUTH WEST

Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

NORTH WEST

Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

THAMES

Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 01734 535 000
Fax: 01734 500 388

MIDLANDS

Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

WELSH

Rivers House/Plas-yr-Afon
St. Mellons Business Park
St. Mellons
Cardiff CF3 0LT
Tel: 01222 770 088
Fax: 01222 798 555



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