

**YARE CATCHMENT MANAGEMENT PLAN**

**SECOND ANNUAL REVIEW**

**JUNE 1997**



**APRIL 1996 - MARCH 1997**



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## EXECUTIVE SUMMARY

This Second Annual Review summarises the progress made in achieving targets to improve the environment in the Yare catchment in the year following the publication of the First Annual Review, in June 1996. Actions proposed for completion this year have been addressed in a positive manner by all parties and many have subsequently been successfully completed. It is particularly pleasing to note that many Actions have been carried out by working in partnership to implement schemes that are of tangible benefit to the local environment.

Out of 69 Issues proposed for the 1996/1997 financial year, 35 activities have been completed, four have been deferred, and another 30 are on target. A number of issues have been merged because actions were inextricably linked. A further two new issues have been added to this Annual Review and a number deleted from the programme as these were part of the Environment Agency's routine business.

Good progress has been made at Happisburgh to Winterton on the sea defences capital scheme. The works on this frontage have progressed and nine offshore reefs have now been built (out of a total of 14 in the overall strategy). Approximately 900,000m<sup>3</sup> of beach recharge has also been placed behind the reefs.

*The tables in Section 4.0 form an integral part of this review, and should be referred to for a summary of progress on each action.*

**Further copies of this Annual Review can be obtained from:**

Environment Planner  
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Telephone enquiries: Ipswich (01473) 727712

Copies of the Yare Consultation Report (January 1994), the Summary Leaflet for the Yare Catchment Management Plan (January 1994), the Yare Action Plan (March 1995) and the Yare CMP First Annual Review (June 1996) are also available.

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### Norfolk & Suffolk Area Environment Group

The Norfolk & Suffolk Area Environment Group (AEG) have overseen the Yare Catchment Management Plan process. There are 23 independent members on this group. Each member has a particular interest in the local environment but none are employees of the Environment Agency. Area Environment Group members are:-

#### **Mrs Sheila Ashford (Chairman)**

Ms Jane Madgwick  
Mr George Alderson  
Cllr Mrs Rita Carter  
Prof. John Lester  
Mr George Steele  
Cllr Ms Julie Craven  
Mr Mark Williams

Cllr Peter Baldwin  
Mr Richard Clements  
Ms Iris Webb  
Mr Paul Woodcock  
Mr David Ritchie  
Mr Colin Palmer  
Cllr Mrs Viv Mason  
Mr Anthony Duckworth-Chad

Mr John Brown  
Ms Janette Ward  
Mr Stan Alden  
Cllr Brian Morrey  
Mr Tony Preston  
Dr Ian Shepherd  
Mr Trevor Jolley

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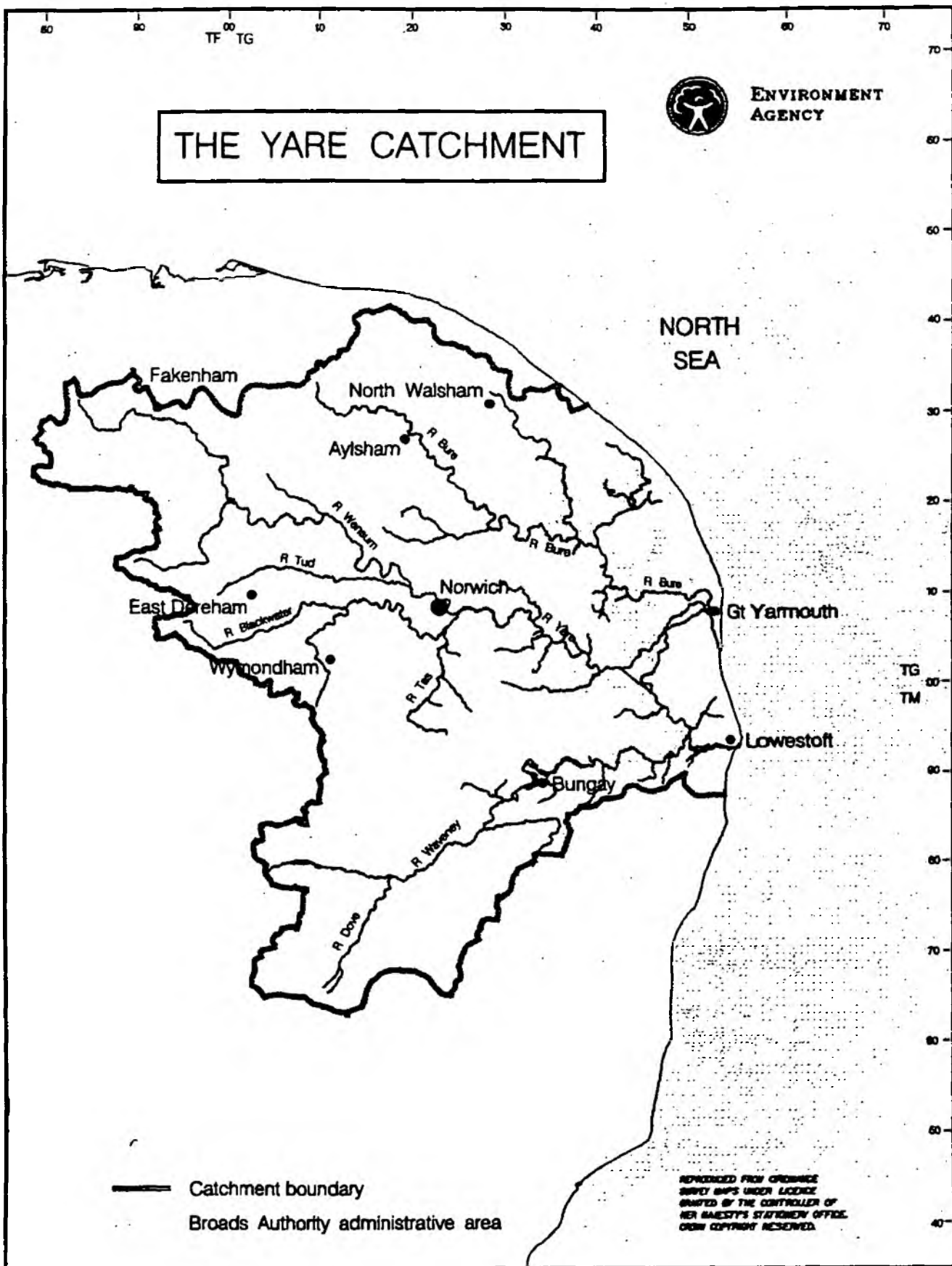
## 1.0 INTRODUCTION

The Environment Agency is one of the most powerful environmental regulators in Europe. We exist to provide high quality environmental protection and improvement. This is achieved by an emphasis on prevention, education and vigorous enforcement wherever necessary. Our overall aim of protecting and enhancing the whole environment contributes to the world-wide environmental goal of *sustainable development*, which has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

The Local Environment Agency Planning process is open and integrated to optimise the overall future well-being of people and ecosystems through the pro-active management of the environment. It has evolved from the former water-based National Rivers Authority (NRA) Catchment Management Planning process and embraces the wider Environment Agency remit to regulate waste and industrial air pollution. This process realised the environmental potential of a catchment in terms of water quality, water quantity and physical features. The first stage was the production of a Consultation Report. This outlined the Issues within the catchment and Options for their resolution. Following a period of Consultation, the Action Plan was produced. This included an Activity Plan for improvements to the water environment. It also outlined areas of work and investment proposed by the former NRA and others.

An important part of the Catchment Management Plan process is to monitor the performance of the Activity 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 Second Annual Review summarises the progress made since the publication of the First Annual Review in June 1996. It is recommended that this Review is read in conjunction with the Action Plan, and that the reader be mindful that the Yare Plan commenced with the consideration of the water environment only. Land and air issues will be progressively incorporated through the Annual Review process.

The Yare Catchment Management Plan will ultimately be converted to a Local Environment Agency Plan (LEAP). LEAPs are the Environment Agency's forward-planning mechanism that provide a fully integrated approach to environmental management, based on river catchments. The Environment Agency will prepare LEAP Consultation Reports for all catchments in England and Wales by the end of December 1999.



## 2.0 THE YARE CATCHMENT

The Plan area is 3181km<sup>2</sup>, and predominantly rural in character. Nearly 40% of the population live in the city of Norwich and the major towns of Great Yarmouth and Lowestoft.

There are four major freshwater rivers that contribute to the catchment. The River Waveney in the south, the Rivers Yare and Wensum which combine at Norwich and the River Bure to the north.

A large proportion of the area is of international environmental importance and the tidal reaches of the rivers form one of Europe's most important lowland wetlands, designated with the same status as a National Park. The catchment also contains the Broads Environmentally Sensitive Area (ESA) and many Sites of Special Scientific Interest (SSSIs).

In Broadland much of the area is below sea level and potentially at risk from tidal flooding. Some SSSIs in the area support rare and endangered habitats and species and have consequently been proposed as Special Areas of Conservation under the *EC Habitats Directive*.

The majority of Norfolk's significant waste disposal sites are within the Yare catchment area and there are 154 landfill sites in the Plan area.

There is an extensive tourist industry with visitors being attracted by the opportunities for boating, walking, bathing, fishing and general sight-seeing.

The catchment has received below average annual rainfall for the years of 1996 and 1997, contributing to the present drought. Despite the above average rainfall in November 1996, the reduced recharge to the aquifer has contributed to below average groundwater levels in the Norfolk Chalk and Norfolk Drift over the past year.

## **2.1 Vision for the Catchment**

The Environment Agency's vision for the Yare catchment is to undertake and encourage sustainable use and management, where required, through the restoration of the whole environment by:

- managing ground and surface water resources of the catchment in a sustainable manner to achieve the right balance between the needs of the environment (broads, rivers and wetlands) and those of abstractors and other water users;
- meeting water quality targets which reflect the high environmental status and restoration needs of rivers, broads and wetlands;
- implementing a Broadland flood defence programme that meets the needs of people and property, that protects from saline intrusion and tidal inundation and where possible enhances the environmental assets of the area;
- seeking opportunities to improve the biodiversity of the area, particularly with respect to conserving and enhancing wetlands and coastal habitats and associated flora and fauna;
- enhancing the public enjoyment of the Broads and upper river valleys through improvement of the recreational opportunities and amenity value of the area;
- influencing planning and development control to avoid inappropriate activities affecting land, air and water; and by,
- ensuring that all waste management facilities are developed and operated so as to prevent pollution of the environment, harm to human health and detriment to the local amenity.

## 2.2 Key Objectives of the Yare Catchment Management Plan

The Environment Agency's key objectives in the Yare catchment over the next twelve months are to:

- develop scheme proposals so that work can start as soon as approval for the Broadland Strategy is received;
- progress River Ecosystem (RE) objectives;
- progress investigations into defining methodologies for River Flow Objectives (RFOs);
- investigate the feasibility of producing a water resources model for the Rivers Wensum, Yare, Tas and Tud;
- assist in the implementation of agreed local Biodiversity Action Plan targets for relevant habitats and species within the Yare catchment;
- implement the Conservation Strategy for the River Wensum SSSI in partnership with English Nature;
- ensure that the future phases of the landfill sites at Aldeby, Costessey, and Attlebridge are developed in fully-engineered containment;
- ensure that the landfill site operator continues groundwater monitoring at Mayton Wood and the scavenger pumping scheme is instigated, if necessary;
- request the operators of Attlebridge to install further 'trigger boreholes' at the site and to undertake further work on the design of the groundwater remediation scheme to protect the River Wensum;
- continue hydrological and ecological monitoring of wetlands;
- progress the expansion of the hydrometric network; and to,
- develop interim code of practice for protection of wetlands.

### 3.0 SUMMARY OF PROGRESS

For details of progress of each Issue, please refer to the 'Progress' sections in the tables in Section 4.0. Notable achievements and key events are summarised below.

#### 3.1 Water Quality

The resolution of the water quality problems identified in the Yare Action Plan are only likely to be achieved following several years of continued work, as few relate to a single specific cause.

- Progress has continued to be made towards the management of eutrophication within the Norfolk Broads, particularly with the identification of non-statutory quality targets for specific areas in the Broads and the Broads Restoration Strategy (Issues 12 and B1), which is nearing completion. The successful partnership approach towards the management of the Trinity Broads between the Environment Agency, Broads Authority and Essex & Suffolk Water will result in an agreed management plan and the continuation of the trial bio-manipulation and restoration of Ormesby Broad. Also, the programme for improving the phosphorus removal capability at seven Anglian Water Services sewage treatment works will be completed during 1997, with agreed tighter phosphorus consent standards then coming into force.
- All of the planned pollution prevention visits to Broadland Boatyards undertaken as part of an education campaign have now been completed.
- Improvements in the biology of the Rivers Tiffey and Chet has been recorded for 1997, since the completion of pollution prevention visits (Issues 33 and 43). Further work on the development of SIMCAT water quality models to address the identified failures to meet RE targets for the Rivers Wensum and Waveney has been undertaken and a review of catchment inputs and targets is planned for the forthcoming year.
- A working group has been established to ensure improved liaison with the Broads Authority and Local Authorities over bacteriological quality concerns in recreational areas of the river (Issues 54 and 55). It is anticipated that a draft management policy to cover water contact sports will be completed this year. In addition the problem of unsatisfactory sewage overflows is being addressed by Anglian Water Services (AWS) with a capital works programme now in progress for planned completion in the year 2000.

### 3.2 Water Resources

- The ultrasonic gauging station at Ellingham Mill, which was identified as a priority to replace existing structures (Issue 9), has now been installed and is fully operational. Data is now being recorded via the Environment Agency's telemetry network.
- Consideration is being given into defining interim protection zones around wetland sites (Issue 6[c]). This measure will allow licensing policy guidance to effectively include the impact on wetlands while research is being undertaken to relate the wetland monitoring programme to detailed site investigations.
- The Environment Agency is to produce a strategy document on the needs and priorities for groundwater modelling (Issue 1[c]). This strategy will highlight the programme of model development and will highlight the scope for each model/catchment area. The strategy will include the fundamental needs of resource assessment as well as the strategic management of aquifer systems.
- The delivery of various Water Resource Issues within this Annual Review are dependent on the setting of Minimum Acceptable Flows and River Flow Objectives and have therefore had to be delayed (Issue 3 and the impact on Issues 1 and 7). This is principally due to important national initiatives taking longer to conclude than originally planned, particularly with regard to the definition of In River Needs. It is understood that the Environment Agency will not to be in a position to deliver a final methodology until nearer the year 2000.

### 3.3 Flood Protection

- The recognition of the continuing deterioration of flood defences throughout Broadland, and the people, property and infrastructure at risk of flooding, is outlined in the Broadland Flood Alleviation Strategy. An estimated expenditure of £63 million over the next ten years is planned, to meet the target standards of service in Broadland. External consultants have been appointed to consider the local strategy for identified individual compartments. These are at Halvergate, South Breydon and Burgh Norton Marshes, to reduce the risk of defence failure and saline inundation of the protected areas. Detailed appraisals have been prepared for these compartments. Environmental Assessments have been placed on deposit and work on Contract preparation started. Urgent erosion protection works have been carried out at the River Yare Haddiscoe Cut Confluence.
- The requirement for an integrated sea defence management system has led to the production of Shoreline Management Plans (SMPs). The Shoreline Management

Plan, Sub-Cell 3b (Sheringham to Lowestoft), has been completed and accepted by all the Operating Authorities, including the Environment Agency. The SMP provides a management framework which will influence the Environment Agency's decision making process in flood defence. This SMP will now be annually reviewed.

- The Environment Agency has established minimum maintenance frequencies to protect people and property from tidal and freshwater flooding. These together with an agreed annual maintenance programme, set out the routine works to be carried out on those watercourses and flood defences. The capital programme identifies, prioritises and executes works of a major nature on the sea defences and tidal and freshwater river systems in the Plan area. The Environment Agency are currently dealing with over 200 schemes, which are identified and prioritised in the Long Term Plan (Issue 21).

### **3.4 Planning and Development**

- As a statutory consultee under Town and Country Planning legislation, the Environment Agency seeks to ensure that Local Planning Authorities (LPAs) are aware of the environmental implications of an individual development when deciding on whether to grant planning permission. In some cases we will ask the LPA to impose conditions on a development, to ensure that the impacts on the environment are minimised. We will endeavour to work with the relevant District/Borough Councils to ensure that any development is sensitive to the needs of the local environment.
- Many partnerships occur or are planned within the Environment Agency, all of which are designed to deliver the mutual objectives of the partners involved. The Environment Agency has a diverse network of relationships with many national, regional and local organisations as well as landowners and the general public. One significant area for future development will be the building of partnerships to aid environmental education. It is through these partnerships that we are able to fully contribute towards the goal of sustainable development.
- The Environment Agency's overall aim of protecting and enhancing the environment contributes to the Government's and the world-wide environmental goal of sustainable development. This is reinforced through the Environment Agency's vision statement. Action, regulation, education and enforcement all have a part to play in working towards sustainable development by the Environment Agency and others. Integrated environmental management is a means by which the Environment Agency can promote sustainable development and LEAPs are the mechanism to achieve this on a local scale.

### **3.5 Fisheries, Recreation, Conservation, and Navigation**

- A willow survey has been completed for the River Wensum and River Waveney for the Environment Agency by the Countryside Management Projects. The study included all areas of woodland or significant trees within the river corridor. This information has provided a valuable input into the management of the river and some pollarding and coppicing identified in the reports has already been completed on the River Wensum.
- River rehabilitation and habitat improvements schemes have been completed at Hoe Rough SSSI on the Wendling Beck. The project involved the creation of a berm area which will be colonised by marginal vegetation. A pond was also restored on the site.
- A habitat restoration feasibility project and hydrological assessment has been completed at Lyng on the River Wensum.
- The Conservation Strategy has been completed by the Environment Agency and English Nature for the River Wensum SSSI. The results of this Strategy will now be implemented and will cover all of the Environment Agency's work.
- The Northern Rivers Group has been set up which covers the River Bure, Thurne and Ant and is a partnership between Broads Authority, Agency and with support from English Nature. The project aims to achieve a consensus on the fundamental issues and priorities which underpin management of the water environment in these catchments. The project is producing a strategy which recommends management options to tackle the issues in this area.
- Crayfish surveys have been completed on the River Wensum, River Yare (from Shipham to Corpusty) and River Bure.
- Otter, Water Vole and Mink surveys have been completed for all the rivers within the area. The project was jointly funded by the Agency, Norfolk Wildlife Trust and Essex and Suffolk Water. Bridges were surveyed and 300metres upstream and downstream. The survey concluded there was good coverage of otters across the area. However only very few water vole sites were found and mink were found mainly on the River Waveney. As a result of the survey further work is to be carried out this year on the water vole.

### 3.6 Waste

- As part of the Government's strategy for sustainable waste management, the Environment Agency has taken a key role in promoting waste minimisation initiatives to industry in the area. To develop the required expertise in waste minimisation practices, we have joined forces with Bernard Matthews Foods Ltd and UK Waste. By working in partnership with industry we can achieve sustainable waste management practices in a potentially polluting sector of industry. An in-depth waste audit of factories was conducted within the catchment, which identified significant opportunities for reducing waste, along with the associated environmental and economic benefits.
- Over the period of the CMP, the Environment Agency will expand its role in promoting waste minimisation, having recognised the important role such a concept has in pollution prevention and the protection of the environment. This role takes the form of providing advice and guidance to industry and involves site visits to individual companies. The Environment Agency also actively participates in business seminars and conferences to raise awareness of the environmental, economic and legislative aspects of waste. The Environment Agency has adopted this guiding role in order to act as a catalyst for changing industrial waste management practices, in line with the Government's strategy on sustainable development.

#### 4.0 MONITORING REPORT

The text in the following table has been developed from the Yare CMP Action Plan document and is updated to show the progress and changes that have occurred since the Action Plan and previous Annual Review were published. The progress for each action is summarised in the table.

Details of whether estimated cost represents capital or revenue expenditure is given, in brackets, adjacent to the cost. Capital expenditure is expenditure which results in the production of, or tangible improvement to, a fixed asset. Revenue expenditure, is expenditure associated with operational costs to maintain existing Standards of Service.

## MONITORING REPORT



When a box is shaded within the table, this indicates that the Issue has been MERGED, CHANGED OR DELETED FROM THE 1995 ACTION PLAN PROGRAMME. The reason and justification for this is written in the shaded box.

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
<b>(A) THE MANAGEMENT OF WATER RESOURCES, THE AMOUNT OF WATER NEEDED BY PEOPLE AND THE ENVIRONMENT</b>											
1. There is a requirement to develop plans for optimum water resource management and development within catchments.	[a] Review Regional groundwater modelling strategy and priorities	Environment Agency	(Staff time) Revenue	.						Report due to be complete by the end of 1997	RHO
	[b] Consider investigations and feasibility of modelling Wensum, Yare, Tas, Tud and/or Bure	Environment Agency	£25k Revenue			.	.	.		The priority and implementation of the catchments will depend on [a]	RHO
	[c] Collect data for In River Needs and apply to RFO methodology	Environment Agency	£25k Revenue					.	.	Reference data collected for the Wensum and Yare. Schedule of data collection will depend on [a].	Area
	[d] Undertake water resource management modelling	Environment Agency	£250k Revenue						.	Dependent upon [a], [b] and [c].	Area

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
2. Opportunity exists to consider more flexible methods of allocating long-term resources.	<p>Either:</p> <p>[a] continue existing practice of allocating resources to agreed planning horizons; or,</p> <p>[b] issue stepped incremental licence quantities to new longer-term licences issued.</p>	This issue is being progressed as part of our routine business									
3. Minimum Acceptable Flows (MAFs) are not defined.	[a] Define methodologies for developing In River Needs and RFOs. Regional studies will be developed to produce Anglian Region methodology.	Environment Agency	To be evaluated							In the absence of setting MAFs there are national and regional developments in defining these two concepts. RFOs are dependant on In River Needs.	RHO
	[b] Wensum and Bure In River Needs data collection for application in Anglian methodology	This Action has been merged into Issue 1[c]									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
4. Management of the freshwater resource in the Halvergate Marshes drainage system.	[a] The implementation of a Water Level Management Plan (WLMP) for Halvergate Marshes SSSI, to be written by the Internal Drainage Board (IDB).	IDB	Known only to IDB						•	WLMP has not been completed - dependant upon IDB priorities.	Sarah Robson
	[b] For the Management Group to consider the problem and to determine a strategy and management mechanism.	Environment Agency, IDB, English Nature, MAFF, Broads Authority and landowners	(Staff time) Revenue	•	•	•	•	•	•	Framework for remediation has not been established although an increased water quality regime is being undertaken. Further sampling is ongoing and discussions continue.	Louise Bond
5. Increased salinity in River Bure above Thurne mouth (see Issue 3).	[a] Following the resolution of Issue 3, investigate the freshwater flow requirement and set appropriate MAFs/RFOs	Environment Agency	£5k Capital						•	Delayed until MAFs /RFOs are set.	RHO
	[b] Report from Northern Rivers Group	Environment Agency	£10k Revenue	•						This issue will be considered by the Northern Rivers Group and the Actions will be fed into the CMP/LEAP.	Charles Beardall

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
6. Groundwater Catchment Areas for wetland sites of conservation value need to be identified.	[a] Implement recommendations of R & D study of wetlands (in particular the 10 year programme of hydrological monitoring of wetlands).	Environment Agency, English Nature, Wildlife Trusts	£475k Capital (for the Region)	•	•	•	•	•	•	This action is ongoing. Twenty five monitoring boreholes have been installed to date. A further eight sites were installed in the reporting year.	RHO
	[b] Carry out environmental studies and implement recommendations at Redgrave & Lopham Fens (RLF) and East Ruston Common.	Environment Agency, Water Companies, English Nature, Wildlife Trusts and Broads Authority	£3.2 million Capital (RLF), £1 million Capital (E. Ruston)	•	• (RLF)	•	• (E. Ruston)			RLF: The application for relocating the public water supply abstraction has been sub-mitted. The water-retaining sluice has been replaced in the Waveney. Extensive fen management is progressing. E. Ruston: preliminary monitoring of water levels started and water quality monitoring is about to start. Peat stripping to be begun by the Broads Authority in 1998.	RHO/ Area

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
7. Groundwater resources in the Bure catchment are inadequate to meet future demands compared against current resource assessment.	[a] Bure Water Resources Management Plan to be produced including a review of existing uses, environmental/In River Needs and reassessment of groundwater availability see Issues 1 and 3).	Environment Agency	£10k				.	.	.	No progress as action is dependent on In River Needs and groundwater monitoring strategy. Timescales have been deferred.	RHO
	[b] Demand management	Part of the Environment Agency's routine business and will be dealt with as a priority Issue in conjunction with AWS.									
8. Hydrometric Network.	[a] Area Hydrometric Network review.	This review is now complete and will continue as part of our routine business.									
	[b] Install new permanent and temporary gauging sites within the Plan area, as identified through the ARTS project	Environment Agency	£37.5k per annum Revenue (for the Region)	.						All ARTS Phase III sites to be installed 97/98. All ARTS Phase IV sites to be installed 98/99. Other low priority sites have been identified and will be installed following the completion of ARTS.	Area
9. Gauging at Ellingham Mill.	Build new Ultra Sonic Gauging station to replace existing structures.	Complete. This Ultra Sonic Gauging Station has now been installed and is operational.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
10. There is a need to produce detailed plans on water levels for wetland conservation areas, i.e. WLMPs.	[a] Following agreement with English Nature, the Environment Agency will produce WLMPs for Redgrave & Lopham Fens SSSI, the River Wensum SSSI and Dillington Carr, Gressenhall	Redgrave and Lopham Fens complete and now subject to periodic review:									
		Environment Agency	(Staff time) Revenue	•	• (Wensum)					Interim Management Statement in place. WLMPs to be written by end of 1998.	Sarah Robson
				•	• (D. Carr)						
	[b] Environment Agency to contribute to the WLMPs being produced by other organisations.	Environment Agency and other operating authorities	Minimal	•	•	•	•	•	•	Ongoing, especially with IDBs	Sarah Robson
	[c] Requirements for further WLMPs to be discussed with English Nature.	Environment Agency and English Nature	(Staff time) Revenue		•	•				When first stage of WLMPs are finalised, discussions will be held.	Sarah Robson
11. A number of wetland- dependent SSSIs currently have no structures controlling water levels.	[a] Requirements for new structures to be assessed on a site by site basis in conjunction with English Nature.	This Issue has been merged with Issue 10 [c] above as the two are inextricably linked.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
<b>(B) THE MANAGEMENT OF EUTROPHICATION CAUSED BY NUTRIENT ENRICHMENT</b>											
12. Water quality in the Broads area is required to be of an appropriate quality to allow Broads restoration objectives to be met.	[a] Setting of appropriate non-statutory quality targets for specific areas in the Broads.	Environment Agency	(Staff time) Revenue	•						Discussions held by Northern Rivers Group. Targets identified and will be reported on this financial year.	Geoff Phillips
	[b] Setting of statutory quality objectives when available, in the Broads.	DoE	Known only to DoE	•						Ongoing.	Geoff Phillips
	[c] Project to assess historical phosphorus concentration using diatom remains in sediment cores.	Completed. Results support phosphorus quality targets identified by Northern Rivers Group [a].									
	[d] Set new P consents on 7 key STW at a value of 1 mg/l P.	Environment Agency	(Staff time) Revenue	•						AWS Capital Works due to be complete this financial year. P consents will then come into force.	John Daniels
	[e] Monitor the effectiveness of new P consents and Broads Authority sediment removal at Barton Broad.	Environment Agency	£120k Capital	• • •						Bid for the R & D expenditure has been approved. Project planning ongoing with anticipated start in 1997/98. Monitoring of Barton Broad ongoing.	Geoff Phillips

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Fut-ure	Progress	Issue Contact
13. Impacts of intermittent algal toxins in Hickling Broad which result in extensive fish mortalities.	[a] Research via the Thurne model. Long term improvements within the catchment will decrease the salinity which encourages toxin release.	Thurne Model completed, but existing model was unable to reliably predict salinity in Hickling Broad. Actions [c] and [d] have been incorporated as a result.									
	[b] Instigate the resulting recommendations.	No longer appropriate - new actions established.									
	[c] Compilation of an Hydrological Assessment on the benefits and impacts of the Catfield fish refuge.	Environment Agency	£7.5k Revenue	•						Results awaited of the hydrological assessment on the impacts of the Catfield fish refuge.	Louise Bond
	[d] Fish population surveys in Hickling Broad and response to Catfield fish refuge.	Environment Agency	£10k Capital	•						Survey currently being undertaken.	Robin Burr-ough
	[e] Reconvene Thurne study group to consider long term options.	Environment Agency	(Staff time) Revenue	•						The study group has not reconvened.	Geoff Phillips

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
14. Concern over blue-green algae in a number of recreational and amenity lakes and its adverse affect on public drinking water supply.	Develop an 'Action Plan' for specific lakes in a priority order, which will identify practical remedial measures.	Environment Agency, Broads Authority	(Staff time) Revenue	.						Action Plan completed for Fritton Lake. Discussions undertaken with site owner and advice given. Action Plan for Filby Broad to be undertaken this year. Other priority sites may be identified in the future.	Geoff Phillips
15. Concern over increasing sediment and nutrient levels from land run-off.	[a] Promote buffer zones by influencing land use.	Environment Agency, MAFF	(Staff time) Revenue	.	.	.	.	.	.	Routine work which is undertaken with landowners as opportunities arise.	Charles Beardall / Louise Bond
	[b] Discuss with MAFF the potential for R & D trial of buffer zones in northern Broads area following establishment of improved phosphorus removal at Stalham STW.	Environment Agency, MAFF	(Staff time) Revenue	.						Dependent upon 12 [d].	Geoff Phillips
	[c] Set up and coordinate a working group for the way forward.	Environment Agency, MAFF and FRCA	(Staff time) Revenue	.	.					The working group will need to consider a case-study river to identify the extent of the problem and possible solutions. This trial will take place on the River Wensum.	Charles Beardall

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
B1. Develop a programme for Broads Restoration and provide the re-establishment of a natural ecosystem.	[a] Continue to monitor existing trials at Alderfen, Cockshoot, Pound End, and Ormesby Broads.	Environment Agency, Broads Authority	£30k per annum Capital	.	.	.	.	.	.	Monitoring programme for 1996/97 has been completed. Monitoring is ongoing.	Jo Pitt
	[b] Develop techniques for stabilisation of biomanipulated lakes and the re-introduction of fish populations.	Environment Agency, Broads Authority	£20k Capital	.						R & D project to identify management needs has been set up.	Charles Beardall
	[c] Agree and publish a Broads Restoration Strategy.	Complete. Broads Restoration Strategy has been drafted and is awaiting publication by the Broads Authority.									
	[d] Agree and publish a management plan for the Trinity Broads.	Environment Agency, Essex & Suffolk Water, Broads Authority	(Staff time) Revenue	.						Trinity Broads Management Plan to be published this year by the Broads Authority. Monitoring of existing management activity is being continued by the Environment Agency.	Geoff Phillips

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
<b>[C] THE MANAGEMENT OF FLOOD PROTECTION AND THE PHYSICAL ENVIRONMENT</b>											
16/17/18/19.  Broadland Flood Alleviation Strategy	Sustain appropriate standards of defence	Environment Agency	£63 million Capital	.	.	.	.	.	.	Detailed appraisals completed for compartments 11, 22 and 36. Environmental Assessments are on deposit. Detailed design work progressing.	Bernard Ayling
20. Requirement for Integrated Sea Defence Management	[a] Produce Shoreline Management Plan.	The Shoreline Management Plan, Sub-Cell 3b (Sheringham to Lowestoft), has been completed and adopted by all the Operating Authorities, including the Environment Agency. The Plan will be annually reviewed (see Action [c]).									
	[b] Feed preferred options into Long Term Capital Programme (see Issue 21).	Environment Agency	To be evaluated	.	.	.	.	.	.	Ongoing.	Stan Jeavons
	[c] Review the Shoreline Management Plan.	North Norfolk District Council, Environment Agency	(Staff time) Revenue	.	.	.	.	.	.		Clive Flanders

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Fut-ure	Progress	Issue Contact
21. Maintenance of flood defence structures in the Plan area.	Improve/sustain flood defences through the Long Term Plan (LTP).	Environment Agency		.	.	.	.	.	.	The Environment Agency are currently dealing with over 200 schemes, all of which are prioritised in the LTP.	Steve Hayman
22. Failure to meet river maintenance frequencies.	Meet river maintenance frequencies recommended by the Environment Agency and approved by the Local Flood Defence Committee.	Frequencies have been revised and maintenance levels are now implemented through the revenue programme as resources allow.									
23. Inability to guarantee maintenance of agreed water level at Costessey Mill.	To be addressed by the final WLMP for the River Wensum SSSI (see Issue 10).	The automated structure now has the equipment to monitor the flow at Costessey Mill. This Issue will be considered by the WLMP (see Issue 10).									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
24. River control structures and mill rights.	Rebuild structures to Environment Agency requirements, following a planned programme of mill structure refurbishment.	Owners with mill rights, Environment Agency	Variable	.	.	.	.	.	.	Refurbishment of Mendham Mill resulted in the automation of the sluice in December 1996. Structures will be refurbished as opportunities arise and as resources allow. Possible sites for the 1997/98 financial year include Bintree and Lenwade Mills (on the River Wensum) subject to financial resources.	Stan Jeavons
25. Management policy for bankside trees and bushes on non-tidal rivers.	[a] Review current management techniques.	Environment Agency, Landowners, Countryside Management Projects, County Councils	£2k per annum Revenue	.						Review of management techniques for the Rivers Waveney and Wensum has now been completed.	Louise Bond
	[b] Implement a programme of pollarding.		£2k per annum Revenue	.	.					Pollarding programmes for the Rivers Waveney and Wensum are now complete. Some pollarding work has been completed on the Upper Wensum.	Louise Bond

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/ 98	98/ 99	99/ 00	00/ 01	01/ 02	Fut- ure	Progress	Issue Contact
<b>(D) THE MANAGEMENT OF WATER QUALITY THROUGH STATUTORY (EC) AND NON-STATUTORY QUALITY OBJECTIVES</b>											
26. Concern about non-compliance with <i>EC Directive</i> on the quality of bathing waters at South Beach, Great Yarmouth.	Monitor effects of diverting existing phased programme of sewage outfalls to new Caister sea outfall by 1997.	Environment Agency	£1k per annum Revenue	.	.					The site is now compliant (1996/97) with the mandatory coliforms parameters under the <i>Directive</i> . Monitoring the effects will continue.	Mark Johnson
27. River Wensum - Taverham to Mile Cross Bridge (Norwich); River Tud - Honingham to River Wensum. Failure to meet nitrate levels laid down in <i>EC Surface Water Directive</i> .	[a] Derive a nitrogen budget for these rivers, to identify significant sources of nitrogen.	A nitrogen budget for these rivers is not justified, at the present time.									
	[b] Nitrate Vulnerable Zones (NVZs) are to be reviewed in 1997.	Environment Agency	£1k Revenue	.						The NVZ for the upper River Wensum was not designated under the 1997 review, due to the short river stretch involved.	Chris Mc-Arthur

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
28. River Waveney - Bungay to Beccles. Exceedance of nitrate levels required under EC Surface Water Directive.	[a] Use of EC Nitrate Directive for limiting nitrogen application by farmers in the designated area.	Complete. NVZ designated.									
	[b] NVZs are to be reviewed in 1997.	The review has been completed and the boundaries of the NVZ remain unchanged.									
29. Mercury in the tidal River Yare from past discharges runs to foul sewer in Norwich.	[a] Planned programme of management with Broads Authority to include navigational dredging.	Environment Agency, Broads Authority	(Staff time) Revenue	.	.	.	.	.		Ongoing liaison between Broads Authority and Environment Agency.	Geoff Phillips
	[b] Implement R & D proposals for routine monitoring of mercury in River Yare.	Environment Agency	£5k	.	.					Monitoring ongoing as part of our routine business. This monitoring includes periodic surveys of mercury levels in fish.	Geoff Phillips
	[c] Develop policy on disposal of dredgings with Broads Authority and notify all riparian owners of their responsibilities.	Environment Agency, Broads Authority	Minimal	.						Policy continues to be developed and riparian owners will be notified once this is complete.	Geoff Phillips

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/ 98	98/ 99	99/ 00	00/ 01	01/ 02	Fut- ure	Progress	Issue Contact
30. River Wensum, Lenwade to New Mills. Failure to meet River Ecosystem (RE) target.	[a] Investigate cause of failure. [b] Reconsider the appropriate long term target as SSSI designation now necessitates re-evaluation of inputs to this catchment.	This has now been incorporated into Issue D1.									
31. River Tat - Syderstone to River Wensum. Failure to meet RE1 due to dissolved oxygen (DO) levels.	[a] Investigate cause of failure	Environment Agency	£0.5k Revenue	•						Cause of failure most likely from low flows and ponded stretches on river. Monitoring will continue.	Steve Bewers
	[b] Reconsider the appropriate long term target.	Environment Agency	£0.5k Revenue	•						Data files for SIMCAT model completed. Model needs calibration before long-term targets reviewed.	John Daniels
	[c] Assess River Needs Consent (RNC) for Sculthorpe STW.	Environment Agency	£0.5k Revenue	•						RNC cannot be finalised until river targets are agreed (dependent on [b]).	John Daniels
	[d] Short term RE3 target.	Complete. Short term RE3 target imposed to prevent further deterioration in water quality.									
	[e] Consider works when assessing AMP3 to allow RNC to be imposed	Environment Agency	£0.5k Revenue						•	Consideration to be given if the RNC is tighter than existing legal consent.	John Daniels

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
32. River Tud - downstream of Mattishall STW. Failure to meet RE target and predicted biological score.	[a] Investigate cause of failure.	Complete. River stretch now compliant. Quality issue now resolved, with associated target compliance.									
	[b] Assess long term target for river and RNC for Mattishall STW.	Complete. RE targets remain unchanged at RE2.									
	[c] Impose modified RNC on STW if necessary.	Environment Agency	(Staff time) Revenue; Cost to AWS							Works compliant with RNC but this cannot replace the current legal consent under existing AMP2 guidelines. Candidate for AMP3.	John Daniels
	[d] Impose short term target of RE5 to prevent further deterioration in water quality.	Complete.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
33. River Tiffey - Wymondham to Kimberley. Failure to meet RE2 target with respect to ammonia and predicted biological score.	[a] Investigate cause of failure.	Investigation is complete.									
	[b] Assess long term target for river and RNC for Wymondham STW.	Complete.									
	[c] Impose RNC on STW if necessary.	Environment Agency	(Staff time) Revenue; potential cost to AWS	•						Phase One of improvements at Wymondham STW, which were agreed as additional expenditure under AMP2, are now complete. Consent to be reviewed.	John Daniels
	[d] Impose short term target of RE4 to prevent further deterioration in water quality.	Completed. Reflects current quality, but pollution prevention visits to be undertaken upstream.									
	[e] Investigate cause of biological failure at Abbey Bridge.	Environment Agency	£1k Revenue	•						The investigation was not carried out in 1996/97 although improvement in the routine biological samples was evident. Detailed survey to be undertaken this financial year.	Julia Stansfield

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
34. River Tas (Old Hall Bridge to Fornsett St Mary) - failure to meet RE3 target with respect to dissolved oxygen.	[a] Survey to identify polluting sources.	Pollution survey completed and low dissolved oxygen levels are likely to be related to low river flows.									
	[b] Monitoring will continue to assess improvements.	Environment Agency	(Staff time) Revenue	.	.					Monitoring continues as part of routine business. The stretch continues to fail its RE target.	Steve Bewers
35. River Ant (Wayford to Ant Mouth) - failure to meet predicted biological score and RE target due to Biochemical Oxygen Demand (BOD).	Await the result of the R & D programme, in conjunction with the Broads Authority, and subsequent implementation of the water quality restoration proposals.	Issue D2 has incorporated the water quality failures for this reach of the River Ant.									
36. River Ant (Horning to Wayford) - failure to meet RE target.	[a] Undertake pollution survey.	Issue D2 has incorporated the water quality failures for this reach of the River Ant.									
	[b] Reconsider long term river targets.										
37. River Thurne - Potter Heigham to Thurne mouth. Failure to meet RE target of RE3 due to BOD.	Continue to participate in R & D programme with Broads Authority and continue active participation in Thurne Study Group.	Environment Agency and Broads Authority	(Staff time) Revenue	.	.	.	.			The Environment Agency will participate in the Thurne Study Group once it has been established and continues to undertake an R & D programme addressing eutrophication.	Geoff Phillips

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
38. River Waveney - Roydon to Billingford. Failure to meet RE target.	Assess MAF according to appropriate river needs and implement if necessary.	Issues 38, 39, 40, 41 and 46 have been combined to form Issue D3. All of them related to RE target failures in the River Waveney and its tributaries.									
39. River Waveney - Billingford to Shipmeadow. Failure to meet RE target.	[a] Investigation to discover cause of failure.  [b] Reconsider the appropriate long term target.	Issues 38, 39, 40, 41 and 46 have been combined to form Issue D3. All of them related to RE target failures in the River Waveney and its tributaries.									
40. Starston Beck - Harleston to Waveney. Failure to meet RE target due to ammonia.	Investigate cause of failure, assess long term target for river and RNC and if necessary impose RNC on Harleston STW.	Issues 38, 39, 40, 41 and 46 have been combined to form Issue D3. All of them related to RE target failures in the River Waveney and its tributaries.									
41. Starston Beck - Pulham St Mary to Starston. Failure to meet RE target.	[a] Investigation to discover cause of failure.  [b] Reconsider the appropriate long term target.	Issues 38, 39, 40, 41 and 46 have been combined to form Issue D3. All of them related to RE target failures in the River Waveney and its tributaries.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
42. Wendling Beck - Failure to achieve predicted biological score.	Survey in upper catchment to identify polluting sources, including the impact of Dereham STW,									Survey completed, no significant problems found. Original biological failure only marginal. No further action justified.	
43. River Chet - failure to achieve predicted biological score.	[a] Undertake pollution survey.  [b] Undertake biological survey of river to assess impact.									Pollution surveys completed. Monitoring to continue.  Biological survey completed and the stretch is now compliant with its biological target.	
44. River Tat (Tatterford Common) - failure to meet predicted biological score.	Undertake pollution survey.									Site now complies with biological target.	
45. River Wensum (A1065 Road Bridge-Kings Beck to Kings Bridge) - failure to meet predicted biological score at both sites.	Liaise with IDBs over possible adverse effects of their works programme.									Site now complies with its biological target.	

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
46. River Dove, Thorndon Watercourse - Cat Bridge. Low river dilution of sewage and industrial effluent causes failure to meet predicted biological score.	<p>[a] Pending outcome of MAFs (Issue 3), include Thorndon Watercourse and River Dove in River Waveney water quality model, to check RE target is appropriate (see Issue D3).</p> <p>[b] Set short term RE4 target.</p> <p>[c] Carry out pollution prevention survey.</p>	Issues 38, 39, 40, 41 and 46 have been combined to form Issue D3. All of them related to RE target failures in the River Waveney and its tributaries.									
47. Marsh dyke - downstream of Beccles STW. Concern expressed by riparian owners about water quality in marsh dykes.	Enhance the quality of effluent from Beccles STW.	AWS	Known only to AWS							Aesthetic pollution problems are still continuing. AWS are considering their options. It is not cost effective for the effluent discharge point to be transferred directly to the River Waveney.	Steve Bowers

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
D1. River Wensum - RE Target Failures.	[a] Review long term data set (chemical and biological), develop and run SIMCAT model to review inputs to catchment and establish achievable targets.	Environment Agency	£1k Revenue							The data file for the SIMCAT model has been completed and the calibration is to be undertaken in 1997/98.	John Daniels
	[b] Discussion with English Nature regarding conservation objectives as part of SSSI Conservation Strategy.	The Conservation Strategy for the River Wensum SSSI has been completed.									
	[c] Agree long term river targets	Environment Agency	(Staff Time) Revenue							Awaiting the outcome of [a]	John Daniels

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
D2. River Ant - RE Target Failures	[a] Assess degree to which eutrophication accounts for failures in River Ant.	Environment Agency	£0.5k Revenue	•						Assessment ongoing.	Geoff Phillips/ Alison Bramwell
	[b] On completion of [a] establish appropriate RE targets pending improvements to eutrophication (see Issue 12).	Environment Agency	(Staff time) Revenue	•						Awaiting outcome of [a].	Geoff Phillips/ Alison Bramwell
	[c] Set short term RE targets to reflect current quality.	Complete.									
	[d] Carry out field investigations pending outcome of [a].	Environment Agency	£1k Revenue	•						Field investigations completed at East Ruston tributary. Monitoring of future improvements to continue.	Steve Bewers

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
D3. River Waveney RE Target Failures.	[a] Set short term RE targets to protect current quality for significant failures.	Complete.									
	[b] Agree river flow criteria for headwaters and tributaries.	Environment Agency	(Staff time) Revenue							Awaiting outcome of Issue 3.	Steve Bewers
	[c] Develop SIMCAT model.	Environment Agency	£1k Revenue							The data file for the SIMCAT model has been completed and the calibration is to be undertaken in 1997/98.	John Daniels
	[d] Consider model output, long term data record and review existing RE targets.	Environment Agency	£0.5k Revenue							Dependent on [c].	Geoff Phillips
	[e] Carry out field survey/pollution prevention investigations on Thorndon Watercourse and Starston Beck.	Environment Agency	£2k Revenue							Monitoring of improvements will continue.	Steve Bewers
	[f] Impose a RNC on Harleston STW.	Environment Agency	(Staff time) Revenue							Consideration to be given to include the site in AMP3 programme.	John Daniels

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
<b>(E) THE MANAGEMENT OF DEVELOPMENT AND ITS IMPACT ON THE ENVIRONMENT</b>											
48. Development: flood risks and adverse environmental effects. Development often increases risks to the water environment but the Environment Agency has only limited powers to impose conditions on development.	[a] Endeavour to persuade LPAs to adopt Guidance Note principals in their Structure and Local Plans. In addition, raise awareness of LPAs to DoE Circular 30/92 and its importance in formulating Development Plans and in the determination of planning applications.	This Issue is being progressed as part of our routine business.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
49. Concern over pollution by surface water discharges from industrial estates in Great Yarmouth.	[a] Prosecution when sources are proven. [b] Controlling discharges by means of consents when justifiable. [c] Diversion of 'risk areas' to foul sewer when available. [d] Planned strategy for future industrial areas to ensure that effective drainage systems are in place at the beginning of the development.	This Issue is being addressed as part of our routine business.									
50. Groundwater contamination - Trowse, Norwich.	[a] Investigation to determine source of pollution. [b] Remedial action to clean up groundwater.	Environment Agency  Site owner	£40k Capital  Depends on cause.	.	.					Monitoring is ongoing.  Awaiting outcome of [a].	Simon Wood  Simon Wood

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/ 98	98/ 99	99/ 00	00/ 01	01/ 02	Future	Progress	Issue Contact
51. Concern over pollution risk to River Wensum by Attlebridge Waste Disposal site.	[a] Request adequacy of monitoring trigger boreholes.	A review of the licence has been undertaken this year. This has resulted in a proposed modification to the licence approval, a point which is presently being sought.									
	[b] Ensure site capped in accordance with the waste management licence.	Environment Agency	(Staff time) Revenue							The site will be capped in 1997/98. It has been temporarily capped in the meantime.	Paul Hayward
	[c] Ensure site operators develop specific contingency plans for remediation to be used in the event of exceedance of trigger levels in trigger boreholes.	Environment Agency	(Staff time) Revenue							Preliminary trigger levels have been set, but further details are required.	Paul Hayward
	d] Continue audit monitoring of the site and require site operators to produce annual environmental impact report.	Environment Agency, site operator	£2k per annum Revenue							Implemented an Environment Agency monitoring programme which is on-going. Environmental Impact Assessment will be required under the terms of the new licence.	Paul Hayward
52. Groundwater contamination by solvents - Thorpe, Norwich.	Continue to monitor extent of contamination and warn groundwater users if required.	This issue is being progressed as part of our routine business.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
53. Groundwater pollution and potential pollution of River Yare from old waste disposal site at Harford, Norwich.	[a] Investigate and monitor to assess extent of groundwater contamination.	Investigation is complete.									
	[b] Remedial measures on site.	Norwich City Council (NCC)	Known only to NCC	.						NCC continue to monitor. Long-term monitoring will continue after the completion of restoration.	**
	[c] Monitoring to continue as in [a].	Site operators	Known only to site operators	.	.	.	.	.	.	Monitoring will continue as part of our routine business.	**
E1. Identification of flood plains and flood risk assessment.	Undertake mathematical models of river valleys and coastal zones to determine 'Flood Risk Areas'.	Environment Agency	To be evaluated	.	.	.	.	.	.	Long-term project.	RHO

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
E2. Disposal/recovery of drilling muds from North Sea gas explorations.	[a] Investigate an environmentally sound disposal/recovery route for North Sea drilling muds, stored at temporary locations in east Norfolk.	Dewatering and de-oiling plant is now operational and the process has an authorisation.									
	[b] Assess potential sites and technology of process proposed.	Complete.									
	[c] Authorise disposal process at preferred site.	Environment Agency	(Staff time) Revenue	•						Ongoing.	

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
E3. Protection of the groundwaters in the catchment from waste management activities.	[a] The engineered containment of further phases of Aldeby, Costessey and Attlebridge landfill sites.	All three landfill sites are working in fully contained and engineered cells. Action is complete.									
	[b] Continued monitoring of the groundwater at Mayton Wood. If necessary require operator to instigate the groundwater remediation scheme.	Environment Agency, site operators	£0.5k Revenue	.	.	.				Groundwater monitoring is ongoing.	Simon Wood
<b>(F) THE MANAGEMENT AND DEVELOPMENT OF RECREATION</b>											
54. Concern that bacteriological quality in some stretches of the River Yare is not adequate for water contact sports.	[a] The application of Water Quality Objectives (WQOs) for water contact sports.	The application of Water Quality Objectives lies entirely within the responsibility of the Department of the Environment.									
	[b] Agree long term plan to monitor bacteriological quality information for recreational areas.	Environment Agency, Broads Authority, Local Authorities	£0.5k Revenue	.						Working Group set up, with long term plans yet to be finalised.	Steve Bewers

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
55. Possible health risk to participants in water sports, including swimming in rivers, notably the Rivers Yare and Wensum.	[a] Address problem of existing unsatisfactory storm sewage overflows as per AMP2.  <u>As there will still be a risk from unidentifiable sources, proceed with the following options:-</u>	Environment Agency, AWS	Known only to AWS	•	•	•	•			Work with AWS is ongoing and on target.	Steve Bewers
	[b] Management policy to be derived to cover water contact sports within Norwich, as a joint initiative with the Local Authorities.	Environment Agency, Broads Authority, District Councils	(Staff time) Revenue	•						Working Group (see Issue 54) is tackling [b] and [c] and draft course of action will be published shortly.	Steve Bewers
	[c] Notices to be erected at popular sites in conjunction with the Local Authorities during 1996. Bacterial monitoring by EA to continue.	District Councils	£2k Revenue	•							Steve Bewers

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Fut-ure	Progress	Issue Contact
56. Broads Area - Oil Pollution.	[a] Joint initiative with Broads Authority to assess best means of managing problems.	Completed.									
	[b] Education campaign.	Completed.									
	[c] Prosecution of offenders.	Currently being progressed. This Issue is part of our routine business and therefore has been deleted from this Activity Plan.									
	[d] Environment Agency to hold discussions with Broads Authority which may result in the production of bylaws enforcing oil handling and storage procedures.	Environment Agency, Broads Authority, Great Yarmouth Port Authority	(Staff time) Revenue	•						Postponed, awaiting a Memorandum of Understanding over major oil spills, with the Great Yarmouth Port Authority and the Broads Authority.	Chris Mc-Arthur
57. Provisions of bankside facilities in the Broads for recreational users, amenity concerns and conservation.	Develop a strategy in conjunction with the Broads Authority to provide adequate access for angling which takes account of other recreational uses and amenity concerns.	Issues 57 and 59 have been incorporated into Issue F1.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
58. Impact of bio-manipulation in the Broads on angling.	[a] Improve the awareness of the bio-manipulation objectives among angling representatives, including future enhanced angling opportunities.	Environment Agency, Broads Authority, Angling Associations	(Staff time) Revenue	.	.	.	.	.	.	Ongoing and routine.	Robin Burr-ough
	[b] Production of an information leaflet.	Production of leaflet was seen as an inappropriate way to tackle the problem. Closed.									
59. Limited access to riverbanks.	Liaise with appropriate bodies to improve access to riverbanks where consistent with conservation and enhancement of the environment.	Issues 57 and 59 have been incorporated into Issue F1.									

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
F1. Provisions of bankside facilities for recreational users, amenity and conservation.	[a] <u>Broads</u> - develop a strategy in conjunction with the Broads Authority to provide adequate access for angling which takes account of other recreational users and amenity, and conservation.	Environment Agency, Anglers, Broads Authority, Norfolk CC, IWA, NWT, English Nature, East Anglian Waterways Association	£10k Revenue	•	•	•	•	•	•	Although no schemes were undertaken during the 1996/97 financial year, two schemes are currently proposed for North Walsham to Dilham Canal and Bungay to Geldeston Lock on the Waveney which could have benefits for canoeing, angling, cycling and walking.	Louise Bond
	[b] <u>Entire Catchment</u> - liaise with appropriate bodies to improve access to river banks where consistent with conservation and enhancement of the environment.	Environment Agency, Broads Authority, Local Authorities, landowners	(Staff time) Revenue	•	•	•	•	•	•	The proposal to buy riparian land adjacent to the River Yare failed. Proposed schemes for the 1997/98 financial year include canoeing improvements to the River Bure and a recreational scheme on upper River Waveney at Diss.	Louise Bond
	[c] River Waveney Regeneration Project:	Environment Agency									
	(i) Feasibility study		£7k	•						Feasibility study to identify river restoration and recreation proposals has been completed on the River Waveney from it's source to Bungay.	
	(ii) Implementation of work as identified in (i).		£30k	•							

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
(G) FISHERY DEVELOPMENT AND CONSERVATION											
60. Fish population monitoring in the Broads.	Review all existing fisheries work in the Broads and produce a strategy for future work to take account of the future direction of any R & D.	Environment Agency	To be evaluated	•						Review is ongoing. It will be reported in 1997/98.	Robin Burrough
61/62/63.  Maintain and improve the ecological quality of rivers and flood plains.	[a] Feasibility study to identify river restoration proposals on tributaries of the River Wensum.	The feasibility study was completed for the tributaries of the River Wensum and it identified a number of restoration proposals.									
	[b] Implement river and flood plain enhancement projects as identified in [a].	Environment Agency, landowners	£3k Revenue	• • • • • •						River channel modification to improve marginal habitat along 1km stretch of Wendling Beck at Hoe Rough SSSI has been completed (one of the feasibility study proposals).	Robin Burrough/ Louise Bond
	[c] Carry out enhancement works on rivers in the Plan area, other than the Wensum.	Environment Agency, landowners, English Nature, Wildlife Trusts	To be evaluated	• •						Pipe installation completed at Stow Fen on the River Waveney to allow water from the river into the backwaters in association with proposed de-silting works.	Louise Bond

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
64. Obstructions to passage/migrations of fish.	[a] Assess present obstructions to passage of fish.	Environment Agency, fishery owners	(Staff time) Revenue	.	.	.	.	.	.	Ongoing. Fish passes are assessed routinely.	Robin Burr-ough
	[b] Assess requirement to provide fish passes through new structures.	Environment Agency, fishery owners	To be evaluated	.	.	.	.	.	.	As opportunities arise during refurbishment of appropriate structures, fish pass facilities are incorporated.	Robin Burr-ough
G1. Ensure Environment Agency Activities comply with new EC Directives on nature conservation.	[a] Identify the implications of the EC Habitats Directive on habitat and coastal flood defences.	Environment Agency	£27k Capital	.						National R & D review completed.	Charles Beardall
	[b] Undertake review of abstraction licences and other authorisations consented by the Environment Agency, within the Plan area that may influence European/ International sites.	Environment Agency	To be evaluated	.	.	.	.	.	.	Programme has been identified and review has started for abstraction licences/discharge consents.	Area

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
G2 Identify where the Environment Agency should assist in the identification and implementation of agreed local and national Biodiversity Action Plan Targets for relevant habitats and species.	[a] Identify 'Action Plan' habitats and species that are relevant to the catchment.	Priority habitats/species have been identified and the Environment Agency's role in writing Local Biodiversity Action Plans (LBAPs) has been identified (working in partnership with English Nature, Local Authorities, Wildlife Trusts, the RSPB and other conservation organisations).									
	[b] Identify Environment Agency's role in delivering Local Biodiversity Action Plans.	Environment Agency	£7k	.	.					To be identified once LBAPs are complete.	Louise Bond
	[c] Implement measures to protect relevant priority habitats and species.	Reedbed management at Hickling completed.									
		Further habitat creation for otters.	(Staff time) Revenue	.						As a result of the otter survey, conservation measures are to be implemented.	Louise Bond
	[d] Identify and implement surveys required to develop local action plans where relevant to the Environment Agency	Otter survey	Survey for all rivers completed.								
		Crayfish survey	(Staff time) Revenue	.						Surveys undertaken on the Rivers Wensum, Bure and Yare. More surveys due.	Robin Burrough
		Water vole survey	£8k Revenue	.						Survey to be completed in 1997/98.	Louise Bond

Issue	Activity	Lead Responsibility (Other)	Total Cost (£k)	97/98	98/99	99/00	00/01	01/02	Future	Progress	Issue Contact
G3. There is a need to assess and where appropriate protect the ecological status of headwaters.	Survey headwaters to identify their importance.	Environment Agency	(Staff time) Revenue	•						Fish surveys undertaken on headwaters within the Plan area for fisheries.	Robin Burr-ough
G4. Failure in fisheries target classes on the Rivers Wensum, Bure, Glaven, Ant, Kings Beck and Frenze Beck (tributary of the River Waveney).	Investigate failures	Environment Agency	(Staff time) Revenue	•							Robin Burr-ough

## **5.0 FUTURE REVIEW AND MONITORING**

The Action Plan for the Yare CMP has been monitored annually and a report (such as this one), the CMP Annual Review, has been issued to outline progress. The need to update the CMP has been assessed and we will begin to re-examine the issues at stake in the catchment throughout 1988 and 1999, starting with the launch of the Yare LEAP Consultation Report in March 1999.

Annual Reviews can only be as good and as comprehensive as the information and contributions received. In particular Local Authorities, environment organisations, the Port Authorities, key industry, riparian landowners, recreational users and readers are asked to send in 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 are disseminated properly through the Yare CMP Annual Review.

## APPENDIX I

**Abbreviations**

<i>AMP</i>	<i>Asset Management Plan (AMP2: 1995 - 2000, AMP3: 2000 - 2005)</i>
<i>AWS</i>	<i>Anglian Water Services Ltd</i>
<i>BATNEEC</i>	<i>Best Available Technology Not Entailing Excessive Cost</i>
<i>BOD</i>	<i>Biological Oxygen Demand</i>
<i>BPEO</i>	<i>Best Practical Environmental Option</i>
<i>CMP</i>	<i>Catchment Management Plan</i>
<i>DO</i>	<i>Dissolved Oxygen</i>
<i>DoE</i>	<i>Department of the Environment</i>
<i>EC</i>	<i>European Council</i>
<i>HMIP</i>	<i>former Her Majesty's Inspectorate of Pollution</i>
<i>IDB</i>	<i>Internal Drainage Board</i>
<i>MAF</i>	<i>Minimum Acceptable Flow</i>
<i>MAFF</i>	<i>Ministry of Agriculture, Fisheries and Food</i>
<i>NRA</i>	<i>former National Rivers Authority</i>
<i>R &amp; D</i>	<i>Research and Development</i>
<i>RE</i>	<i>River Ecosystem Target</i>
<i>RFO</i>	<i>River Flow Objectives</i>
<i>SSSI</i>	<i>Site of Special Scientific Interest</i>
<i>STW</i>	<i>Sewage Treatment Works</i>
<i>WLMP</i>	<i>Water Level Management Plan</i>
<i>WRA</i>	<i>former Waste Regulation Authority</i>