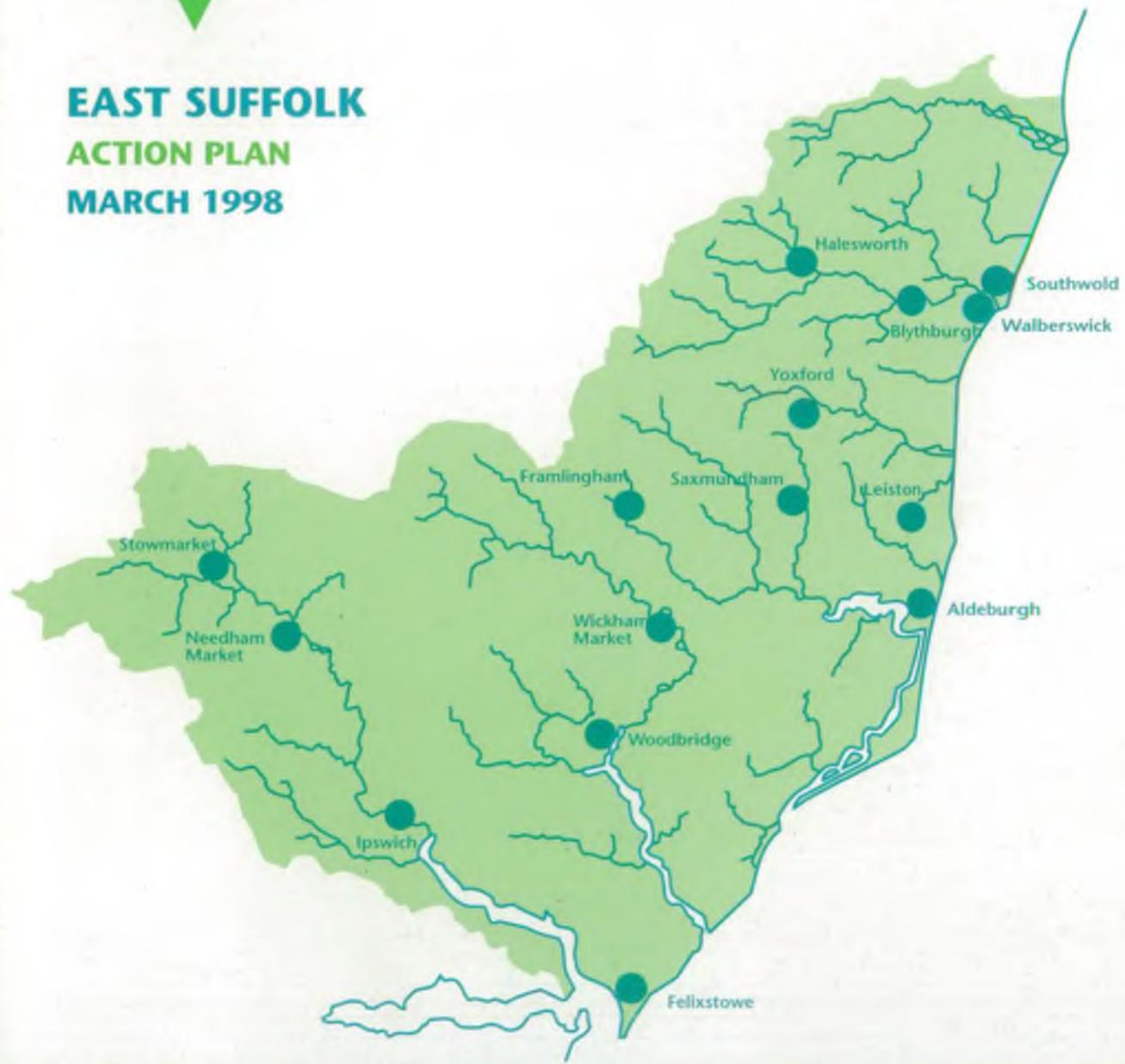




local environment agency plan

**EAST SUFFOLK
ACTION PLAN
MARCH 1998**



**ENVIRONMENT
AGENCY**

KEY DETAILS

GENERAL

Land Area	1,595 km ²
Length of Coastline	78 km

MAIN TOWNS AND APPROX. POPULATIONS (1994)

Total Population	293,659
Ipswich	116,130
Felixstowe	23,500
Stowmarket	13,360
Woodbridge	7,490
Leiston	5,500
Halesworth	4,430
Needham Market	4,380

ADMINISTRATIVE DETAILS

Local authorities:	Suffolk County Council Ipswich Borough Council Suffolk Coastal District Council Mid-Suffolk District Council Waveney District Council Babergh District Council St. Edmundsbury Borough Council
Environment Agency:	Anglian Region, Eastern Area
Internal Drainage Boards:	Lothingland, River Blyth, Minsmere, Upper Alde, Fromus Aide & Thorpeness, Middle Aide, River Deben (Upper), Lower Alde, Alderton
Flood Defence Committees:	Norfolk and Suffolk Flood Defence Committee
Water Utilities:	Anglian Water Services (AWS); Essex & Suffolk Water
Sewage Treatment Works:	AWS: 76 Private: 34 (>10m ³ /day)
Significant Sewage Works:	AWS: 27 (population >250)
Industrial Discharges:	43

WATER RESOURCES

There are a total of 692 licensed abstractions in the East Suffolk Plan area with 11 supplying water for Public Water Supply. Most of the licences abstract from the groundwater resource.

There is no additional summer surface water available for development in the area. However there is limited winter surface water available in some locations and nominal groundwater potentially available in some locations, subject to environmental acceptability.

INTEGRATED POLLUTION CONTROL/RADIOACTIVE SUBSTANCES

No. of IPC authorisations	15
No. of RAS authorisations	6

WATER QUALITY

Length (km) of River in GQA classifications:

Chemical (1996)	Biological (1995)
Class A 0.0	Class a 21.5
Class B 43.5	Class b 181.3
Class C 112.1	Class c 108.5
Class D 101.3	Class d 12.0
Class E 66.5	Class e 10.0
Class F 0.0	Class f 0.0

Unclassified due to lack of samples: 10km

Length (km) of Estuary in Coastal and Estuarine Working Party Grades, 1996:

Class A 65	Class B 11	Class C 4	Class D 0
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WASTE MANAGEMENT

Number of licensed waste management facilities:

Landfill sites	17
Scrap yards	13
Civic amenity sites	8
Waste transfer stations	3
Waste treatment (Treatment/Transfer stations)	2
Lagoons	2
Storage (Lagoons/Storage)	1

FLOOD DEFENCE

Length of Designated Main River:
Fluvial 470.1 km Tidal 78.9 km

Length of Environment Agency Maintained Sea Defences: 38.7 km

CONSERVATION

Numbers of:	
Sites of Special Scientific Interest	72
National Nature Reserves	4
Ramsar Sites	5
Special Protection Areas	5
Candidate SACs	4
County Wildlife Sites (Total)	374
Water-Dependent CWS's	101
Scheduled Ancient Monuments	120

Length of River (km) in Each Fisheries Biomass Class:

	Coarse	Trout	Total
Class A	20	0	20
Class B	38	8	46
Class C	0	8	8
Class D	8	0	8
Total	64	16	82

NAVIGATION

The Environment Agency, Anglian Region, does not have a statutory responsibility for Navigation within the East Suffolk Plan area.



THE EAST SUFFOLK PLAN AREA

- Main River
- Coastline
- Plan boundary
- 'A' road
- Passenger Railway

Environment Agency Copyright Waiver

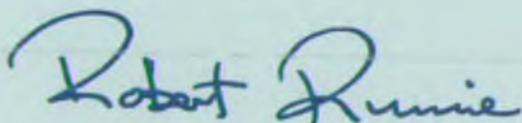
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Note: This is not a legally or scientifically binding document.

FOREWORD

This Action Plan provides a blueprint for the future of this important Plan area within the county of Suffolk. The Environment Agency, in partnership with local communities, will use this Plan to ensure that improvements in the local environment are achieved and that good progress is made towards the vision.

We are very grateful for the contributions made during the consultation period. Although these plans are non-statutory, their aim is to provide a framework for the integrated management of the local environment. I am sure that all parties involved will look forward to taking this initiative forward and help us in refining and developing the Plan as we all implement it.



ROBERT RUNCIE

*Eastern Area Manager (Anglian Region)
Environment Agency*

ENVIRONMENT AGENCY



128368

ACKNOWLEDGEMENTS

We would like to thank all those who responded during the consultation period giving valuable contributions to this report. We would like to give particular thanks to the Norfolk & Suffolk Area Environment Group who have overseen the production of this LEAP. There are 21 independent members on this group. Each member has a particular interest in the local environment but none is an employee of the Environment Agency. Area Environment Group members are:

Mrs Sheila Ashford (Chairman)

Mr George Alderson
Ms Janette Ward
Prof. John Lester
Mr Tony Preston
Mr Colin Palmer

Cllr Peter Baldwin
Mr Henry Cator
Mr Paul Woodcock
Mr Ken Pettican
Dr Ian Shepherd

Mr John Brown
Cllr Mrs Rita Carter
Cllr Brian Morrey
Mr Trevor Jolley
Mr Mark Williams

Mr Richard Clements
Ms Iris Webb
Mr George Steele
Cllr Ms Julie Craven
Cllr Mrs Viv Mason

VISION

Our Vision is *a better environment in England and Wales for present and future generations*. This will be achieved on a local scale by working in partnership with other organisations and individuals to carry out schemes that are of tangible benefit to the local environment and promoting sustainable development.

Over the next ten years our prime objectives for the East Suffolk Plan area are to:

- seek opportunities to improve the conservation value of the area, particularly with respect to protecting, enhancing and, where appropriate, restoring wetland and coastal habitats and associated flora and fauna;
- conserve features of archaeological and historic interest linked to the aquatic environment;
- provide effective flood defences, and, where necessary, raise standards of protection, to maintain the integrity of the catchment's freshwater rivers and the coastal fringe, through the implementation of the Suffolk Shoreline Management Plan (Lowestoft to Harwich) and through our maintenance programme and Long Term Plan;
- manage water resources to achieve a proper balance between the needs of the environment and those of abstractors and other users. One important objective is to alleviate historical low flow problems associated with the freshwater River Deben including a review of the nature of existing abstractions;
- protect areas of groundwater that are vulnerable to pollution, particularly in the Sandlings area;
- liaise with local authorities by contributing to the production of Local Air Quality Management Plans where required;
- provide effective regulation of industry, including ship and associated landside activity in Ipswich, Felixstowe and Harwich areas, having regards to its needs while ensuring appropriate protection of the environment;
- develop and act on the National Waste Strategy and seek partnerships, such as those already formed in the area with Bernard Matthews Foods Limited and UK Waste Management Limited, to encourage the reduction, reuse and recovery of waste in preference to disposal;
- maintain, develop and improve fisheries by meeting appropriate fisheries biomass target classes on freshwater rivers, focussing attention on stretches that are currently failing (Mill River, River Wang and the Lothingland Hundred), and by the promotion of sound fisheries management policies on all still waters;
- maintain and improve water quality, particularly where water quality targets are not being achieved, including stretches of the Earl Soham watercourse, the River Gipping (Sproughton intake to Horseshoe sluice), the River Aide (Brundish to the lower River Aide) and the Bucklesham Mill River from Monument Farm Sluice to Kirton sluice;
- interact with, listen and respond to the community and make a positive contribution towards sustainable development; and
- to ensure that people's enjoyment and appreciation of the environment continues to grow.

The Environment Agency will actively seek to reconcile the conflicting demands on the East Suffolk environment and target resources where they are most needed. Our objectives will be realised through establishing strong links with local communities, working with conservation organisations, agriculture and industry and increasing public awareness of the need to protect our environment.

vision

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1.0 INTRODUCTION

The East Suffolk Local Environment Agency Plan (LEAP) sets out a programme of actions which the Environment Agency and partner organisations intend to carry out over the next five years to protect and enhance the local environment of the East Suffolk Plan area. As with all such programmes, funding for these actions will be subject to availability and to changes in priority.

This Action Plan follows on from the East Suffolk LEAP Consultation Report which was produced in June 1997. While the two documents are best used together, the Action Plan is intended to be a stand alone document.

Therefore, the Action Plan starts with an explanation of the work of the Environment Agency and the LEAP process, followed by a brief description of the Plan area and its associated uses, activities and pressures (provided in more detail in the Consultation Report) before focusing on the actions.

1.1 THE ENVIRONMENT AGENCY

The Environment Agency was established on 1 April 1996 as a result of the 1995 Environment Act. The Agency was created by merging the expertise of Her Majesty's Inspectorate of Pollution (HMIP), the Waste Regulation Authorities, the National Rivers Authority (NRA), and several small units of the Department of the Environment. The Agency therefore provides a more comprehensive approach to the protection and management of the environment by integrating the regulation of air, land and water.

The Environment Agency is divided into eight regions, covering England and Wales. Each Region is sub-divided into Areas. The Anglian Region contains three areas; Central Area, Northern Area, and Eastern Area; the East Suffolk LEAP falls within the Eastern Area of Anglian Region.

Our Aims are to:

- achieve major and continuous improvements in the quality of air, land and water.
- encourage the conservation of natural resources, animals and plants.
- make the most of pollution control and river-basin management.
- provide effective defence and warning systems to protect people and property against flooding from rivers and the sea.
- reduce the amount of waste by encouraging people to re-use and recycle their waste.
- improve standards of waste disposal.
- manage water resources to achieve the proper balance between the country's needs and the environment.
- work with other organisations to reclaim contaminated land.
- improve and develop salmon and freshwater fisheries.
- conserve and improve river navigation.
- tell people about environmental issues by educating and informing.
- set priorities and work out solutions that society can afford.

We will do this by:

- being open and consulting others about our work;
- basing our decisions around sound science and research;
- valuing and developing our employees; and
- being efficient and businesslike in all we do.

Our roles are explained in further detail in Appendix A.

1.0 INTRODUCTION

1.2 THE LEAP PROCESS

Local Environment Agency Plans (LEAPs) are non-statutory plans that identify local environmental issues, how these can be addressed and how the Agency and partner organisations can take these issues forward.

The production of LEAPs involves several stages as shown in Figure 1.1.

CONSULTATION REPORT

The Consultation Report provides a broad review of the locality, its associated natural resources and the activities and uses that put pressures upon them. The report outlines a draft vision for the Plan area and then identifies the issues that need to be tackled, and the options for addressing them to achieve this vision.

STATEMENT ON CONSULTATION

All the comments received during the consultation process following the publication of the Consultation Report are summarised in a Statement on Public Consultation, which was circulated before the publication of this Action Plan to all consultees that formally responded in writing. This document identifies the main comments and views of the consultees and our response.

ACTION PLAN

The Action Plan moves forward from the consultation period, forming a basis for actions within the area for the next five years. It details the nature of actions required, the cost, timescale and responsible organisations. The Agency will be seeking commitment to planned actions by others wherever possible.

ANNUAL REVIEWS

The Agency is jointly responsible, with other identified organisations and individuals, for implementing the Action Plan. Progress is monitored and reported annually by means of an Annual Review.

The Annual Review comprises the following information:

- A detailed comparison of actual progress against planned progress;
- Identification of additional actions to maintain progress in the light of changes in the area;
- Consideration of the need to update the LEAP.

Organisations and individuals forwarding comments receive the Annual Review to update them with the Action Plan progress.

FULL REVIEW

Updates to the LEAP are normally undertaken every five years.

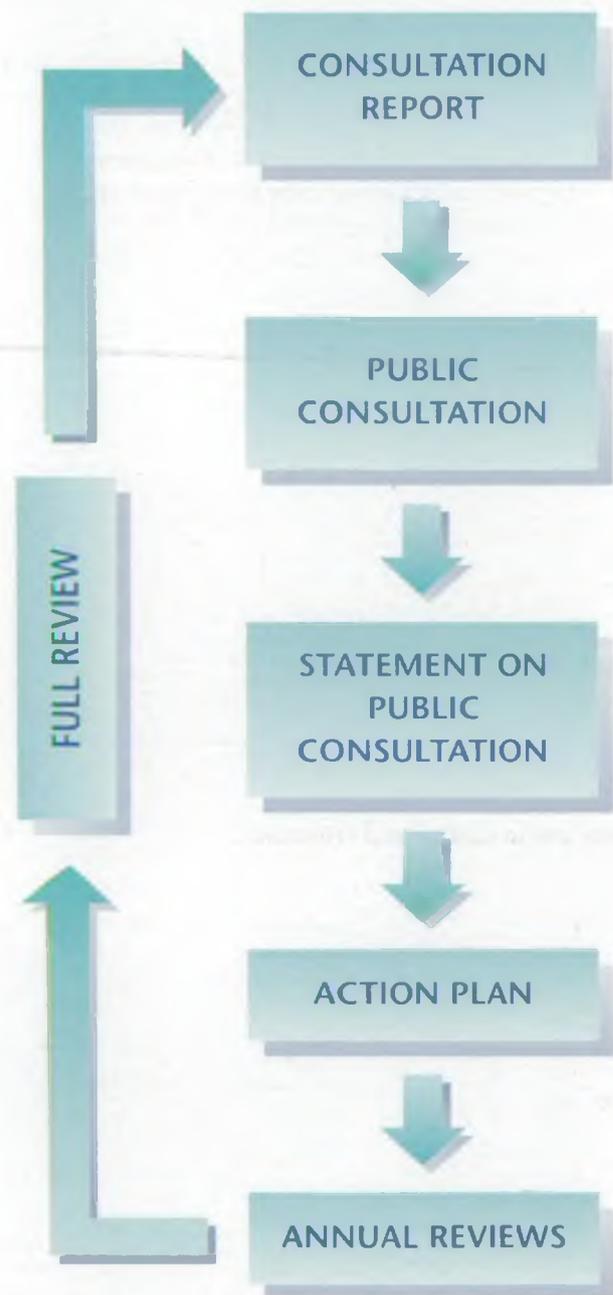


Figure 1.1 LEAP process

2.0 THE EAST SUFFOLK PLAN AREA

2.1 BRIEF DESCRIPTION OF THE LEAP AREA

The East Suffolk Plan area covers 1595km², including a large section of eastern Suffolk and most of the county's coastline; a stretch of 78km from Kessingland to Felixstowe. The boundary is based on river catchments that include the valleys, tributaries and estuaries of the Rivers Gipping, Deben, Alde, Thorpeness Hundred, Yox, Blyth and Lothingland Hundred. Many of these rivers are small and typically rely on groundwater to sustain their flows during the summer months. Exceptionally low rainfall over recent years has resulted in naturally lower groundwater levels and river flows, but these rivers still maintain important habitats and wildlife.

East Suffolk is predominantly rural in nature, although centres of significant industrial activity exist mainly in the southern half, it is mostly in agricultural use. The population is small; Ipswich forms the only large conurbation within the LEAP area, although the towns of Felixstowe and Stowmarket are also of importance. The remaining Plan area is characterised by small towns and villages often having special architectural, archaeological and historic interest. The area is intersected by major roads including the A12 and A14. The rail network in Suffolk centres on Ipswich with lines to Norwich, via Stowmarket, to Cambridge via Bury St. Edmunds and to London and Felixstowe.

The coastal fringe is vulnerable to flooding and the small rivers are susceptible to environmental pressures. The majority of the low-lying coastal land is of national and international importance in terms of conservation and landscape; this is reflected in the high number of designations.

2.2 SUMMARY OF NATURAL RESOURCES, USES, ACTIVITIES AND PRESSURES

WILDLIFE

Within Suffolk some rich and varied wildlife has survived despite the changes that have occurred because of agriculture, forestry and increased urbanisation since the 1940s. Important semi-natural habitats include ancient woodland, unimproved grassland, heathlands, fens, mudflat and saltings; parts of the coast are of international importance for conservation. The diversity of habitats, the associated plant communities and the breeding and wintering bird populations are also of international importance. The shingle structures of Orford Ness and Benacre Ness, are of great geomorphological significance; they also support rare undisturbed plant communities and nationally important breeding bird populations.

East Suffolk is predominantly rural in nature



2.0 THE EAST SUFFOLK PLAN AREA

LANDSCAPE AND HERITAGE

The Plan area is rich in landscape heritage, containing the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) and part of the Heritage Coast.

Woodland is an important habitat and landscape feature within East Suffolk. Forests at Rendlesham, Tunstall and Dunwich are large woodland expanses which are managed by the Forest Enterprise.

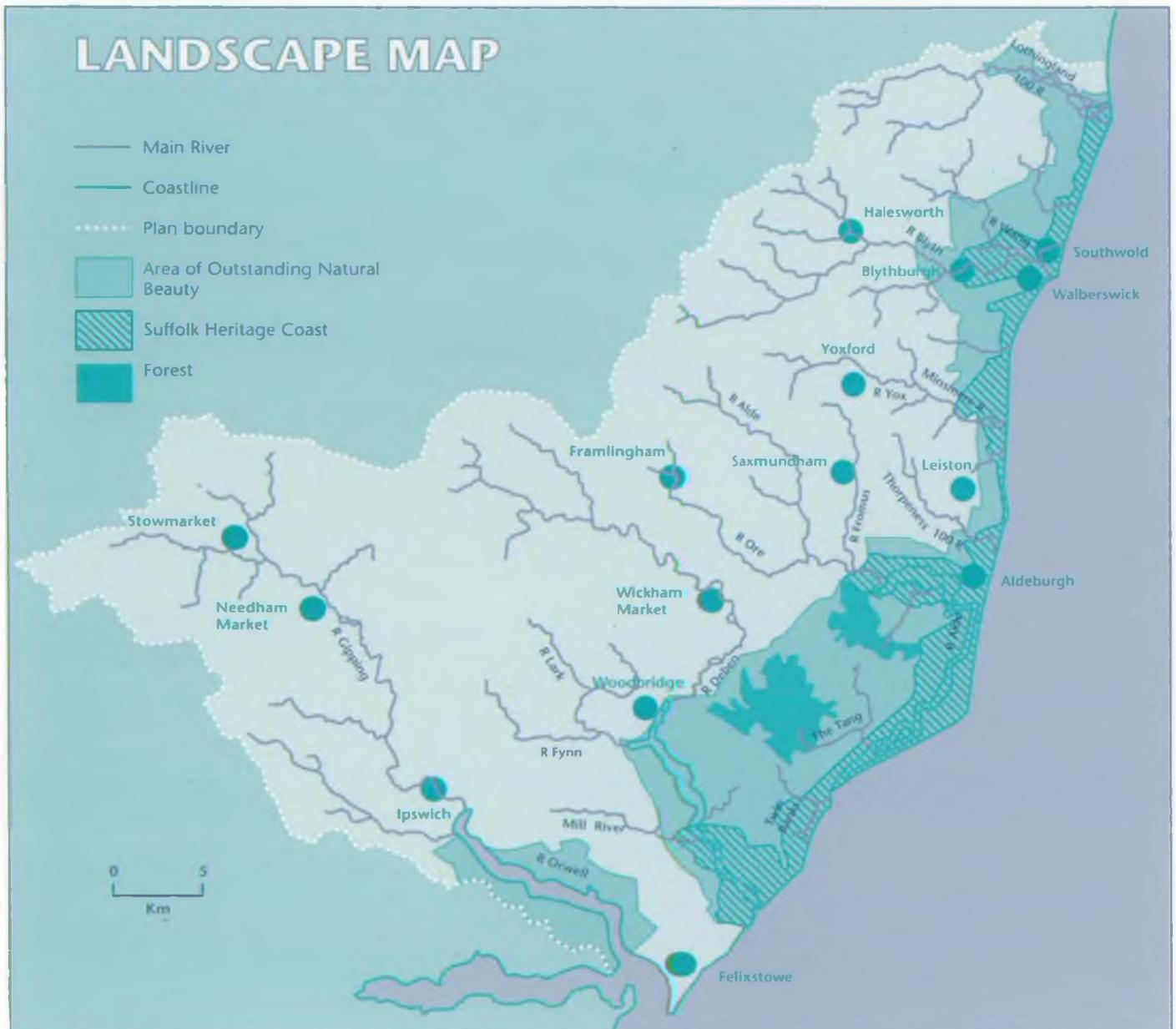
The area is renowned for its wealth of historic buildings and archaeological sites. The County Sites and Monuments Record covers many sites of interest. There are also many unidentified archaeological sites. There is much public interest in historical heritage and some sites, including Orford Castle, Framlingham Castle and Sutton Hoo, attract many visitors.

FISHERIES

Important freshwater fisheries occur in rivers and lakes throughout the Plan area. These are dominated by coarse fish species, although trout is also found in many locations. Many of these fisheries are regularly exploited by anglers for recreational purposes; see below. There is very little commercial fishing activity on inland waters in the Plan area, although some eel fishing may occasionally take place. Sea fisheries occur all along the coast.

RECREATION AND AMENITY

Tourism plays an important role within the Plan area and is a significant industry. The recreational and amenity potential of the region, especially linked with the coast, has long been recognised with recreational boating as a key activity within East Suffolk. The vast expanse of coastal habitats, the rural and unspoilt hinterland and the variety of recreational activities provide major attractions. Angling is a popular sporting activity which ensures that there is always a great demand for both angling venues and facilities.



2.0 THE EAST SUFFOLK PLAN AREA

COASTAL DEFENCES

Approximately 10,000 hectares of Suffolk are below sea level and effective sea defences are, therefore, essential to protect people, property and important wildlife habitats from the effects of tidal flooding. Types of coastal defence range from natural features such as low crumbling cliffs and shingle ridges to hard engineered structures such as seawalls. For centuries, this low-lying coastal fringe has been protected by seawalls, whilst tidal saltmarsh has been reclaimed from the sea to provide agricultural land.

FLUVIAL DEFENCES

There are 470km of main river in the Plan area. The Agency carries out regular maintenance to reduce the risk of flooding in these rivers, including vegetation control, obstruction and blockage removal and dredging. The Agency also uses its permissive powers to provide effective protection from flooding through the construction and maintenance of specific flood defences.



Recreational boating is a key activity within East Suffolk

The Agency is currently preparing surveys (under Section 105 of the Water Resources Act 1991 and DoE Circular 30/92) to define the nature and extent of flood risk areas, resulting in the production of maps showing floodplain



2.0 THE EAST SUFFOLK PLAN AREA

areas. This will help the Agency in advising local authorities on preventing development of sites that are either affecting or within flood risk areas.

THE BUILT ENVIRONMENT AND DEVELOPMENT PLANS

The East Suffolk Plan area lies wholly within the county of Suffolk, and embraces the administrative areas of Suffolk Coastal District Council, Ipswich Borough Council and parts of Babergh District Council, Mid-Suffolk District Council, Waveney District Council and St. Edmundsbury Borough Council. The built environment in Suffolk retains its own particular identity within the towns, villages and small hamlets.

There are six Local Plans which cover the East Suffolk Plan area, these are listed in Appendix H.

FARMING

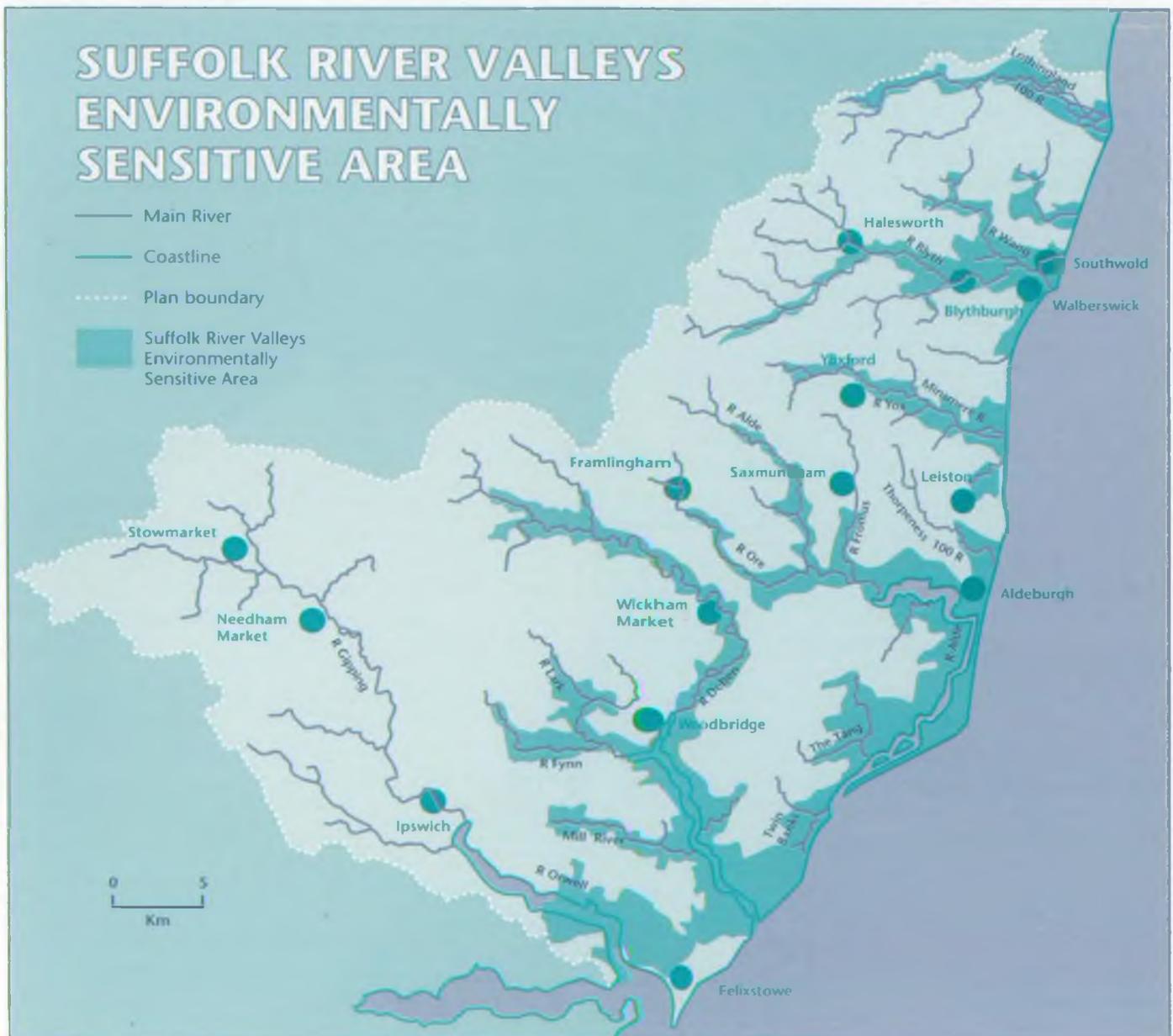
Suffolk has a long history of supporting a prosperous farming community and agriculture continues to be the

predominant land use on nearly 80% of the land today. Arable cropping and livestock husbandry are the main farming activities within the Plan area.

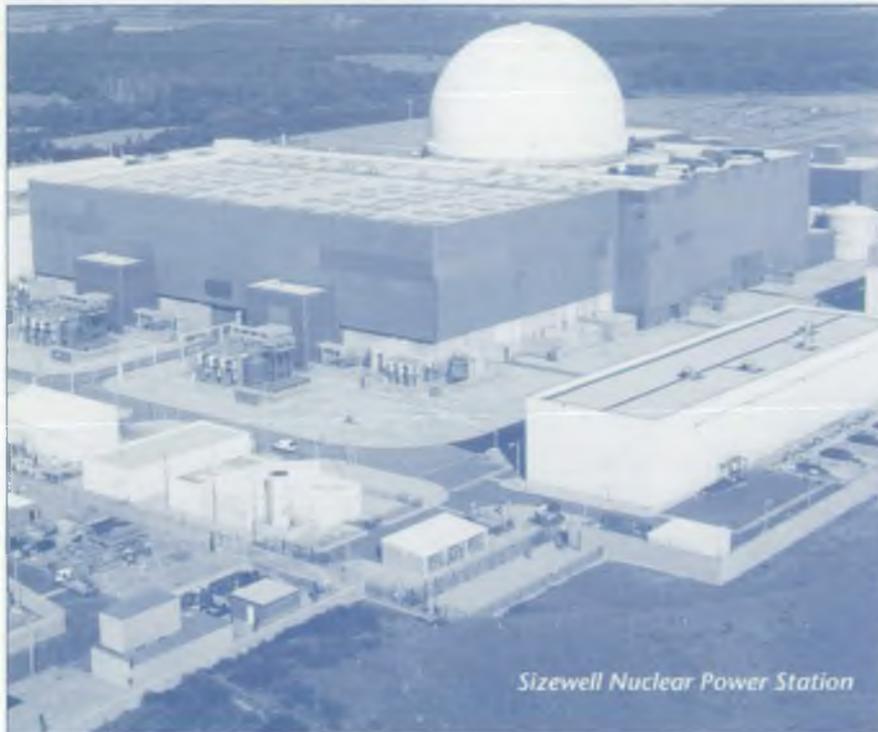
Many river valleys and much of the coast are designated as part of the Suffolk River Valleys Environmentally Sensitive Area (ESA) which encourages landowners to manage their land by traditional methods, which can benefit wildlife and landscape conservation.

INDUSTRY AND POWER GENERATION

As already mentioned, agriculture and tourism are the major industries in East Suffolk. Other industries in the area include nuclear power generation, manufacturing, chemical and shipping. The nuclear power stations on the coast at Sizewell are the most high-profile installations, while the majority of the other industrial sites are found along the Gipping valley at Ipswich, Stowmarket and Felixstowe. Two ports are located at Felixstowe and Ipswich which provide container services to Europe and destinations around the



2.0 THE EAST SUFFOLK PLAN AREA



world, with Felixstowe being the largest port of its type in the United Kingdom.

WASTE MANAGEMENT

Activities within the Plan area create a mixture of household, commercial and industrial wastes, including 'Special Wastes' which are hazardous and are regulated under separate legislation. Landfill is the disposal method for the vast majority of waste produced in Suffolk. Active and closed landfill sites are found throughout the Plan area and are especially numerous within the Gipping valley and around Ipswich. Their location is strongly influenced by the geology of the land and many former mineral workings are utilised as landfill facilities.

MINERAL EXTRACTION

Suffolk has a variety of mineral resources, the most widespread of which are sand and gravel deposits which are extracted for aggregate. Extensive sand and gravel workings are found in the Gipping valley. There are also several licensed dredging areas off the coast of Suffolk with many sites concentrated off the coast of Orford Ness and Felixstowe. Suffolk County Council, as Mineral Planning Authority, has responsibility for all mineral planning matters.

WATER RESOURCES, ABSTRACTION AND SUPPLY

Chalk and Crag aquifers provide baseflow to rivers and support significant abstractions for potable supply, industry and agriculture. Although the Crag is considered to have a large storage capacity, the dry weather conditions from 1995 to 1997 depleted groundwater levels overall to such an extent that the Environment Agency had to investigate many drought-related incidents such as domestic well failures due to lack of water quantity. Water quality in both aquifers is generally good, although the Chalk groundwater

is characterised by high chloride levels to the east, and the Crag can have high levels of nitrate and iron. High nitrate is also a characteristic of the Baylham licensed abstraction, the subject of a Nitrate Vulnerable Zone (NVZ) Review.

The eastern part of East Anglia is very dry in comparison with the rest of England and Wales. This is due to the seasonally variable and west-east distribution of rainfall, resulting in the area receiving approximately two thirds of the national average. Suffolk has an average yearly rainfall of 610mm, of which approximately 460mm is lost to evaporation. There is no further surface water available for abstraction during the summer and only nominal groundwater potentially available in parts of the Blyth and Tidal Deben areas where abstraction would not be detrimental to the environment.

WATER QUALITY

Water quality in the East Suffolk rivers has improved since 1990. The General Quality Assessment (GQA) surveys of 1990 and 1995 have shown that whilst a number of stretches have deteriorated (19%), a more significant number have improved (26%), suggesting an overall improvement within the East Suffolk Plan area. Many water quality problems are related to low flows and low dissolved oxygen levels, but the overall improvement in water quality is linked to pollution prevention initiatives and increased investment in effluent treatment.

AIR QUALITY

The sources of air pollution are varied. They arise principally from combustion processes (domestic, electricity supply, other industry and road transport), each source contributing different levels of the principal atmospheric pollutants. Research by the former Department of the Environment (DoE) suggests that road transport is the main source of air pollution with respect to black smoke, nitrous oxides and carbon monoxide.

Local authorities have been given the responsibility for implementing the Government's National Air Quality Strategy at a local level. This will involve creating Air Quality Management Areas (AQMAs) where air quality standards are not being met and drawing up action plans to improve the situation. The Agency will work with local authorities to clarify responsibilities for implementing the National Air Quality Strategy and to provide relevant information where appropriate. The Agency has a direct responsibility with respect to air quality through the system of Integrated Pollution Control (IPC) which is used to regulate the most potentially polluting industrial processes. Within the Plan area there are currently 15 regulated IPC processes.

3.0 REVIEW OF THE CONSULTATION PROCESS

This section reviews the consultation process and briefly summarises the comments and our actions in response.

3.1 THE CONSULTATION PROCESS

The Consultation Report was published in June 1997 and distributed to consultees and other relevant organisations such as schools, libraries and interest groups. Publicity for the plan was attained by radio interviews and press coverage, and meetings with interested parties to discuss the plan. The consultation period concluded on 1 October 1997.

3.2 RESULTS OF CONSULTATION

Responses were received from 35 organisations and individuals representing a wide cross-section of interests, including environmental bodies, government departments, local authorities, industry, agricultural groups, conservation and recreational interest groups; a list of all those who commented is presented in Appendix B.

Respondents generally congratulated the Agency on producing a comprehensive document and welcomed the Agency's commitment to integrated environmental management and the use of partnerships as the basis for planning and managing the area.

The three issues receiving the greatest level of response were:

- flows in River Deben declining to an environmentally unacceptable level during the summer period;
- concern over the potential impact of declining flows of small streams running across intertidal areas within Special Protection Areas (SPAs); and
- requirement to provide estuarial, coastal and fluvial flood protection.

Issues raised by respondents that were not raised in the Consultation Report include environmental education initiatives, waste management, and the lack of groundwater monitoring. Errors and omissions were also highlighted (see Appendix C); although we welcome these corrections, note that the supporting text in the Consultation Report is not going to be revised.

The consultation process has given us a fuller appreciation of the different viewpoints on the environmental issues identified and this Action Plan has incorporated these views, where appropriate.

4.0 ACTIVITY TABLES

This section sets out the actions proposed to address the issues raised both in the Consultation Report and through the consultation process. As stated in the Introduction, this process will be subject to, among other things, availability of resources (financial and personnel) and changes in priorities for the organisations.

Changes to some of the issues, options and proposals raised in the Consultation Report have been made as a result of public consultation; see Section 3.0. It should also be noted that the issues are set out using a different format to the consultation report; to assist continuity between the two reports, Appendix D cross references the Consultation Report issues with issues in this Plan.

Our principal and immediate environmental concerns relate to:

- managing our water resources;
- enhancing biodiversity;
- managing our freshwater fisheries;
- delivering integrated river-basin management;
- conserving the land;
- managing waste;
- regulating major industries effectively; and
- public awareness and education.

Our intended approach for dealing with these problems is set out in the following tables that show:

- proposed actions;
- organisations who will carry out the proposed activities, either in a lead role or as a partner (other);
- an estimate of the cost to us, if known, of implementing the action over the next five financial years. The initials 'n/a' means that we do not contribute to the funding of the action, 'unknown' means that no cost estimate is available at present;
- a timetable for the activity;
- a contact person for each action.

The following points should also be noted:

- Our everyday work commits substantial resources to monitoring and managing the environment. Some of this work was explained in the Consultation Report;
- Some actions will require feasibility studies and cost-benefit appraisal of options prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be justified;
- Should more issues and actions become apparent during the life of this Plan, they will be added at succeeding Annual Reviews;
- The issues and activities are not presented in any order of priority.

Please refer to the glossary and abbreviations (Appendices F and G) for the definition of acronyms.

4.0 ACTIVITY TABLES

1. MANAGING OUR WATER RESOURCES

We need to ensure that our water resources are properly managed to provide water for all reasonable needs without harming the environment.

The Environment Agency collects groundwater level data routinely to support many of its core activities. Principally, data is required to establish the state and condition of groundwater resources, to determine the current availability and to predict future availability. Greater emphasis is also being placed on groundwater level data to be used in strategic water management, especially during continued drought events. The effectiveness of groundwater level monitoring depends on the monitoring network, which is currently thought to be lacking in some areas, thus affecting data interpretation (Issue 1a). Anglian Region has initiated a programme of formally reviewing the monitoring networks for all aquifers, including this Plan area. Initially the review will determine if there is sufficient monitoring based on an agreed minimum network density. An R&D project is also to be advanced, which will determine the ideal monitoring network based on many contingent variables.

Water resources are critical in the East Suffolk Plan area, with no further surface water available for abstraction during the summer. The River Deben frequently suffers from low summer flows (Issue 1b) and has been confirmed as one of the Environment Agency's 'top 40' Alleviation of Low Flow

(ALF) sites. Problems that have historically arisen include low dissolved oxygen levels, fish kills, excessively low water flows and levels, and complaints from the public and local conservation bodies; these are being addressed in the Deben Low Flow Alleviation Scheme project (DLFAS).

The causes have been identified as peak direct summer abstraction of water from the river, exacerbated by other aspects such as groundwater abstraction for public supply, natural catchment conditions and past river channel management for land drainage purposes. Most of the surface water spray irrigation licences were issued as licences of right under the *Water Resources Act 1963* and do not contain effective cessation controls to protect the environment¹.

A research project funded by the Environment Agency found a strong statistical link between the distribution of certain species of over-wintering wildfowl and the presence/absence of the freshwater streams feeding intertidal creeks within Special Protection Areas (SPAs) (Issue 1c). Further research is currently underway to identify the environmental factors that make these sites important for waders. However, as an interim measure, the Environment Agency is discouraging applications for all abstraction from streams that feed these creeks, until our understanding of the reason for their importance is identified.



¹ Note that we promote more efficient agricultural practices, including the provision of winter storage reservoirs in areas not restricted, through a range of guidance leaflets e.g. *Winter Storage Reservoirs*; *Good Irrigation Practices* and *Irrigation Scheduling* produced by MAFF in 1996 and *Prospects for Spray Irrigation - Making Every Drop Count* prepared by the Agency in 1997.

4.0 ACTIVITY TABLES

1. MANAGING OUR WATER RESOURCES (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
1a. Lack of groundwater monitoring, particularly in the Sandlings area (also see Issue 4a).	Review monitoring network based on minimum criteria.	Agency	100k ¹	■						¹ cost of desktop study and implementation.	David Sec-combe
	Review network based on R&D findings.	Agency	100k ²	■	■	■				² cost for setting up network. Subject to review funding.	as above
	Install additional monitoring points if necessary following above reviews.	Agency	unknown				■	■	■		as above
1b. Flows in the River Deben decline to an environmentally unacceptable level during the summer period.	Set River Flow Objectives (RFOs) defining the actual river and recreational requirements, including review of in-river needs	Agency	unknown						■	Dependent on firming up on regional methodology and priorities for implementing RFOs.	Steve Dines
	Improve river channels, weirs and operation of well gates, as part of ALF scheme.	Agency	unknown	■	■	■	■	■			as above
	Consider options for revocation or relocation of selective abstraction points for surface water spray irrigation when opportunities arise.	Agency licence holders	unknown						■	Costs dependent on circumstances and economic viability. Deben ALF study found this option to be not cost effective.	as above
	Licence Agency's Earl Soham borehole to provide River Support.	Agency	<1k	■						Cost will include £1k/year revenue for operation.	David Sec-combe
	Produce integrated management plan for the River Deben, to be made available to all interested parties.	Agency	0.5k	■	■	■	■			This action will provide a holistic management strategy for a critical catchment.	Chris Mc-Arthur
1c. Concern over the potential impact of declining flows of small streams running across intertidal areas within SPAs.	Carry out hydrological (flow monitoring) and ecological surveys to research the environmental needs and help formulate a long term Action Plan for the areas.	Agency, EN, SWT, RSPB	unknown	■						Initial results from surveys in the estuaries show a correlation between fresh water input and bird densities; data from this survey is subject to an external audit. More detailed surveys are planned, including comparison with the Alde and Blackwater estuaries.	Charles Beardall
	Review Policy in light of findings from above.	Agency CLA, NFU	<1k		■						as above
	Undertake site specific environmental assessment, if necessary following policy review, including the production of an Environmental Statement.	Applicant for formal abstractions	n/a	■	■	■	■	■			as above

4.0 ACTIVITY TABLES

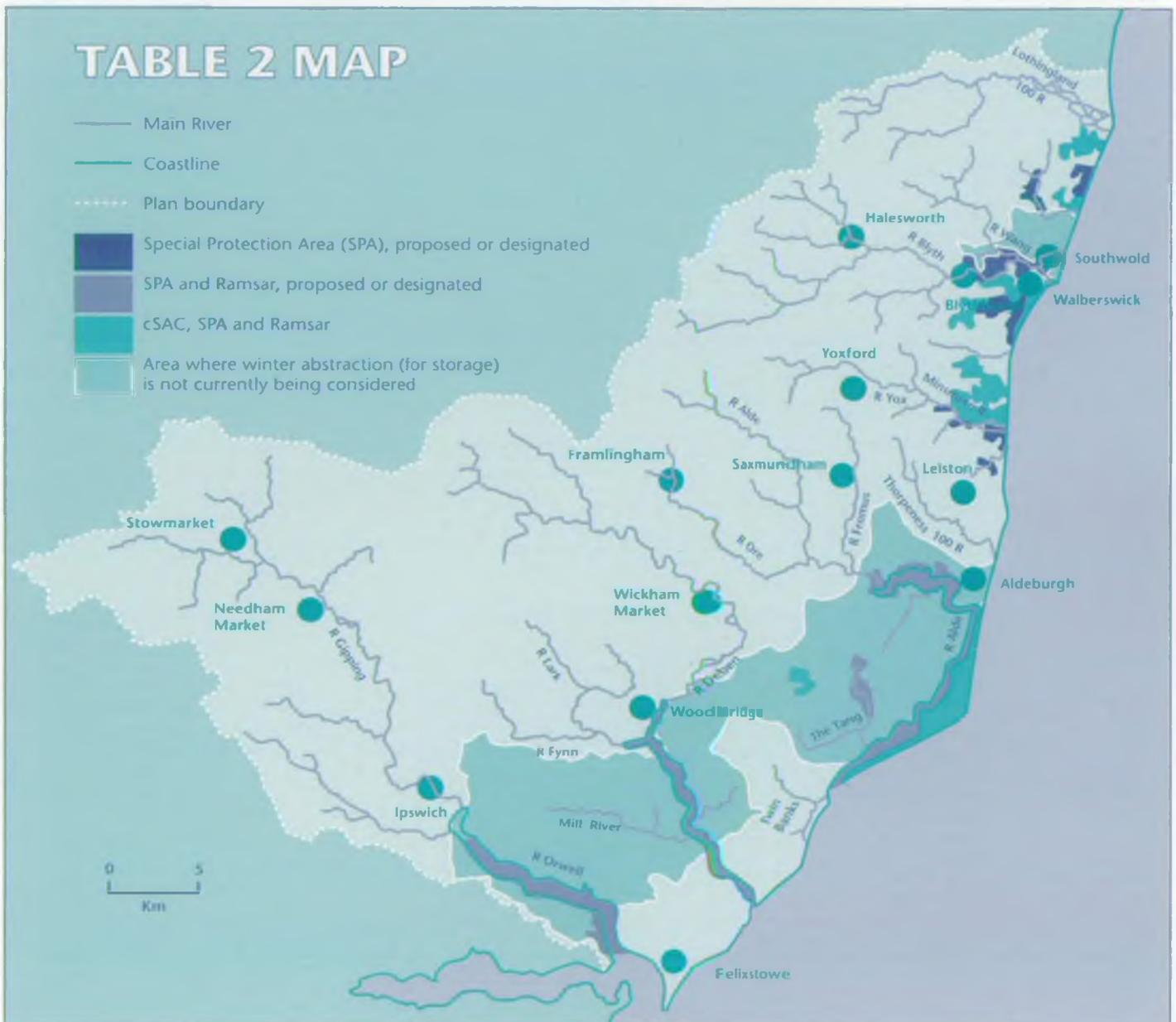
2. ENHANCING BIODIVERSITY

To achieve Biodiversity Action Plan targets for various riverine species (e.g. otters, water voles and crayfish) improvements will be required to a number of riverine habitats.

Most rivers in the East Suffolk Plan area suffer from a lack of habitat diversity (Issue 2a). Recent changes in land-use policies, due to reforms to the Common Agricultural Policy and the introduction of the Suffolk River Valleys Environmentally Sensitive Area (ESA) Scheme, provide the potential to restore the ecology of some sections of the rivers through a variety of enhancement techniques, where this does not undermine agricultural land-use in the floodplain. Examples of rehabilitation work completed in the Plan area include improving fish habitat on the River Gipping and a coastal habitat enhancement scheme at Southwold Dunes.

Headwaters of rivers contribute significantly to their biodiversity. There are, for instance, many macro-invertebrates that are exclusive to, or predominantly found in headwaters (a number of these species are rare). Similarly, headwaters can provide valuable habitat. Our understanding of the impact of agricultural practices, water quality and resource issues, on these headwaters is limited (Issue 2b).

Issue 2c concerns the need to protect key habitats and species in the Plan area as a whole, including our requirements under the *EC Habitats Directive*. The Directive is particularly important in this Plan Area since a significant proportion of the coastal strip has been put forward as candidate Special Areas of Conservation (SACs) and parts are already Special Protection Areas (SPAs). The legislation will have a significant impact on current Environment



4.0 ACTIVITY TABLES

2. ENHANCING BIODIVERSITY (continued)

Agency procedures and operational activities in the catchment since it strengthens protection from activities occurring both inside and outside site boundaries (for instance abstractions or effluent discharges). Furthermore, operations formerly covered under General Development Orders (for instance many flood defence operations) will come under increased scrutiny. We will be liaising closely with English Nature and other consultation bodies, over all operations and activities that may influence the SACs/SPAs; this will include the undertaking of formal Environmental Assessments, where appropriate.

area, the majority within candidate SACs (e.g. Covehithe and Easton) which are highlighted as priority habitats in the *Habitats Directive*. There is concern over the impact of abstraction on the freshwater supply to these important sites (also see Issue 1c). We have special responsibilities to safeguard these sites when planning our own work or considering the action of others. We also have a requirement to review existing authorisations which might affect the conservation objectives of any designated site, and either affirm, modify or revoke them. This requirement has specific implications for water abstraction licences, discharge consents and waste management licences.

There are a number of brackish lagoons within the Plan

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
2a. Lack of habitat diversity within rivers and their floodplains.	Identify methodology for implementing river restoration and habitat enhancements.	Agency	project dependent	■	■				■	This is currently being identified on a site specific basis, e.g. River Deben carried out this year.	Charles Beardall
	Identify and implement river/floodplain rehabilitation projects, the provision of fish passes and habitat enhancements, to include work to be carried out at:	Agency, other interested parties	project dependent	■	■	■	■	■	■		as above
	i. Framlingham Mere;	Agency, SWT, Framlingham College	i. 40k	■						Funding also given from lottery fund.	as above
	ii. Easton Valley Reedbed;	Agency, EN, RSPB	ii. 15k	■	■					Funding also given from EU LIFE.	as above
	Identify specific enhancements to improve fish habitat and spawning sites.	Agency, other interested parties	project dependent	■	■	■	■	■	■	Specific areas are currently being identified.	as above
2b. Need to assess and, where appropriate, protect the ecological status of the headwaters of rivers.	Assess the level of data on headwater and identify priorities for completing species level surveys of selected headwaters.	Agency	10k	■	■					Specification for studies into significance of headwaters has been drafted. Surveys and report are to be carried out next year.	Charles Beardall
	Identify a strategy for the protection of headwaters following on from above survey.	Agency	unknown			■					as above

4.0 ACTIVITY TABLES

2. ENHANCING BIODIVERSITY (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
2c. Need to protect key habitats and species in the Plan area as a whole.	Continue development and implementation of the Suffolk BAP.	Agency, EN, SWT, LAs	4k p.a.	■	■	■	■	■	■	High Priority Species Action Plans written.	Charles Beardall
	Confirm actions required relating to comply with new and existing EU Directives concerning nature conservation.	Agency	unknown	■	■	■	■	■	■	Ongoing.	as above
	Develop a programme to review all discharge consents and abstraction licences that may potentially impact on SACs and SPAs (subject to guidance from Head Office).	Agency licence holders	unknown	■	■	■	■	■	■	Initial review started to determine which, and how many, consents and licences are involved.	as above
	Where appropriate, ensure sustainable protection of habitats through Shoreline Management Plans and future sea defence activities (also see Issue 5a).	Agency	unknown	■	■	■	■	■	■		as above
	Investigate, with partners, the development of compensatory habitat where habitats may be lost due to the implementation of the Shoreline Management Plan preferred options and subsequent sea defence works.	Agency, SWT, EN, RSPB, NT, landowners	unknown	■	■	■	■	■	■	This is also being addressed by National R&D Project and discussions with DETR and EN.	as above

4.0 ACTIVITY TABLES

3. MANAGING OUR FRESHWATER FISHERIES

A number of river stretches in the East Suffolk Plan area fail to achieve their fisheries biomass target class (Issue 3a). Current failures occur on the Mill River, the River Wang and the Lothingland Hundred. These failures require investigation to ensure that the target classes are appropriate and to identify any remedial measures which may be necessary.

A further issue regarding fisheries in the LEAP area is that current designations of river reaches requiring protection under the *EC Freshwater Fish Directive* do not include all stretches regarded as important for their fish stocks (Issue 3b). Consequently, these stocks are not protected to the best available standards under EC law.

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
3a. Failures in fisheries biomass targets.	Investigate failures in fisheries targets, confirm that the targets are appropriate, evaluate the role of natural processes and identify remedial measures.	Agency	1k p.a.	■	■	■	■	■	■		Robin Burrough
	Implement remedial measures, when and where appropriate. <i>Also see options list for Issues 4f & 4g.</i>	Agency	unknown	■	■	■	■	■	■		as above
3b. The current distribution of river reaches designated under the EC Freshwater Fish Directive does not adequately reflect the distribution of important fish stocks for which protection is required.	Review existing designations and recommend revisions and additions as required.	Agency	1k	■	■					Protection of fish stocks is also achieved through compliance with Water Quality RE Targets.	Robin Burrough

4.0 ACTIVITY TABLES

4. DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT

The continued development of agriculture and forestry in part of the Sandlings area, East Suffolk, has resulted in a number of impacts on the natural environment (Issue 4a). Land use changes have continued and the repercussions for the aquatic environment should now be appraised, in an integrated manner, with interested parties from this area. The impact on the water environment should be considered for both groundwaters and surface waters.

MAFF statistics show that BOD loading from livestock in parts of this area can exceed 1000mg of BOD per hectare per day, although the majority of this organic load is disposed of in an appropriate manner. The Environment Agency has actively been working with the farming community to control pollution from these sources, but there is a need to continue this work with particular emphasis on control of diffuse effluent and nutrient inputs (Issue 4b).

There is a shortfall in facilities and pre-planning detail for effective management and control of pollution incidents in this important water supply area (Issue 4c). Specific gaps in our knowledge include the lack of information regarding time of travel of pollutants and the need to provide an automatic water quality monitoring station in the mid Gipping. Contingency plans for minimising impacts from chronic pollution events also need to be prepared.

Inadequate sewerage facilities for the town of Leiston result in frequent pollution of the receiving watercourse, Leiston Beck, and give rise to public complaints (Issue 4d). Storm overflows on the sewers in the town frequently operate and allow crude sewage to enter the watercourse, resulting in sewage debris and litter deposition. Water quality in Leiston Beck does not comply with its assigned River Ecosystem (RE) target.

In some situations a sewage treatment plant may be producing an effluent quality that is considerably better than the legal consent, termed 'over-performing'. In this situation there is a risk that the effluent quality from these 'over-performing' works may deteriorate to the Legal Consent standard and potentially cause a failure of water quality targets downstream (Issue 4e).

There are a number of river stretches which fail to achieve their assigned River Ecosystem (RE) target. Issue 4f relates to river stretches where the only failure against the River Ecosystem (RE) target is for Dissolved Oxygen (DO), with no deterioration over the last fifteen years. These lower levels of

DO are not associated with pollution but are a result of the lowland nature of the rivers. River flows are often naturally low resulting in slow flowing watercourses with little re-aeration occurring. This may be further exacerbated by vegetation and algal growth in the rivers causing large fluctuations in DO levels. Hence, at a number of sites, including the Earl Soham watercourse from Kenton to the River Deben and the River Gipping (Sproughton intake to Horseshoe sluice) dissolved oxygen levels achieve values substantially lower than the assigned target and it is improbable that the targets will ever be achieved for the reasons given above. However, some failures such as for the River Alde from Brundish to the lower River Alde and the Bucklesham Mill River from Monument Farm Sluice to Kirton sluice, cannot be attributed to natural factors and further investigation is required (Issue 4g).

Seasonal operation of Blyford Water Control Structure results in adverse impacts upstream because of saltwater ingress inland and physical changes to the river levels (Issue 4h). In the winter months, the flood gate is lowered for lengthy periods, resulting in impacts as far upstream as Mells Bridge.

Concerns have been raised regarding eutrophication of the River Deben (Issue 4i). At present, there is very little specific monitoring data available to assess the status of the river adequately. However, there are a number of indicators which suggest that the river may be eutrophic and a number of sites fail to achieve their RE targets for dissolved oxygen. The implementation of the Deben Low Flow Alleviation Scheme (DLFAS) programme (also see Issue 1a) may help to alleviate the situation by increasing flows in the river, particularly during the summer months.

The Deben Estuary has recently been assessed for designation as a potential candidate Sensitive Area [Eutrophic] under the EC Urban Waste Water Treatment Directive. However, insufficient chronic eutrophication effects were demonstrated in the studies undertaken and the estuary will not be designated during this review. A water quality model, developed by the Water Research Council (WRC), along with associated research by Essex University during 1996/97, will be utilised to develop management strategies for the estuary into the next century, including the derivation of river need consents for Melton and Woodbridge Sewage Treatment Works. Review of these consents will be phased with Special Area of Conservation (SAC) requirements and AMP3 priorities (Issue 4j).

4.0 ACTIVITY TABLES

4. DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact	
4a. Impacts on the environment arising from land and water use in parts of the Sandlings area (also see Issue 6b).	Expand existing monitoring network to quantify the extent of the water quality problem in ground and surface waters. (See Issue 1a for water resources related actions).	Agency LAs	15k	■	■	■					Chris Mc-Arthur	
	Working group meetings with interested parties.	Agency EN, MAFF, NFU, FE, LAs, SWT, CLA, NT, Framlingham Farmers	5k	■	■	■	■	■		Charles Beardall to chair meetings. Terms of reference and participants to be agreed by partners.	as above	
	Work with the Forest Enterprise towards the adoption of a 'best practice' strategy.	Agency, FE	0.5k	■	■	■	■	■		To be developed with working group.	as above	
	Education and awareness campaign.	Agency, NFU, CLA	2k			■	■	■		To be developed with working group.	as above	
4b. Effluent disposal from livestock sources in the High Suffolk Area is an environmental issue (also see Issue 6b).	Increase pollution prevention inspections.	Agency	0.5k	■	■	■					Chris Mc-Arthur	
	Joint initiatives with interested parties.	Agency, NFU, Farmers cooperatives, Framlingham Farmers, MAFF, CLA	0.5k	■	■	■					as above	
	Education and awareness campaign.	Agency, NFU, CLA	0.5k	■	■						as above	
4c. Threat of pollution to the public water supply abstracted from surface and ground-water sources in the River Gipping catchment.	Construct Automatic Water Quality Monitoring Station (AWQMS) at Needham Market and Bramford.	Agency	22k	■						(expenditures complete)	Involves significant costs to companies.	Chris Mc-Arthur
	Undertake time of travel studies.	Agency	5k	■						(expenditures complete)		Claire Bennett
	Prepare contingency plans for the River Gipping.	Agency	0.5k		■	■						Frances Browne
	Pollution prevention campaign and remediation, as appropriate, in Ground-water Protection Zones (GPZs).	Agency	0.5k	■	■							Chris Mc-Arthur

4.0 ACTIVITY TABLES

4. DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
4d. Poor water quality in receiving surface waters downstream of Leiston.	Candidate for AMP3 in respect of sewerage improvements and sewage treatment works.	Agency, AWS	n/a							To be established by AWS.	Chris Mc-Arthur/ John Daniels
4e. Concern over potential deterioration of river water quality, where present effluent quality is better than the current legal consent.	Develop priority listing based on impacts, with subsequent need to impose River Needs Consent (RNC) in the next AMP3 review.	Agency, AWS	n/a							To be established by AWS.	Chris Mc-Arthur/ John Daniels/ Robin Burrough
4f. A number of river stretches fail to achieve their existing River Ecosystem target class due to factors that cannot be attributed to point-source pollution.	Initiate investigations into oxygen loss routes in river systems.	Agency	20k	■	■					This is currently part of a specific research project by Essex University.	Claire Bennett
	Consider introducing physical structures with re-aeration characteristics e.g. the reinstatement of natural riffles (see Issue 2a).	Agency	<1k		■					Await outcome of above research project.	as above
	Consider introducing a derogation for Dissolved Oxygen ensuring that 'no deterioration' policy applied.	Agency	<1k		■					as above	as above
	Reconsider length of classified rivers in light of flow criteria.	Agency	<1k		■					as above	as above
	Review River Ecosystem target.	Agency	<1k		■					as above	as above
4g. A number of stretches fail to achieve their existing River Ecosystem target class for unknown reasons.	Carry out further investigations to ascertain reasons for failures.	Agency	0.5k	■	■						Claire Bennett
	Carry out pollution prevention inspections, if necessary, following surveys in above action.	Agency	unknown								as above

4.0 ACTIVITY TABLES

4. DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
4h. Operation of Blyford Water Control Structure has implications for the upstream ecology, fishery, water quality impacts and river bank stability.	Automatic control by installation of new tilting gate.	Agency	50k							Assessments to be made of costs and benefits of options 1 and 2. Await outcome of above assessment.	Chris Mc-Arthur
	Modify existing gate.	Agency	30k								<i>as above</i>
	Revise gate operating procedures.	Agency	<1k								<i>as above</i>
4i. Eutrophication of the freshwater environment of the River Deben.	Instigate adequate monitoring programme and construct nutrient budgets.	Agency	2k	■	■	■					Chris Mc-Arthur
	Subsequently, investigate feasibility of controlling nutrient sources (if appropriate) by influencing key players.	Agency, landowners, AWS	0.5k			■	■				<i>as above</i>
	<i>See Issue 1b for further options relating to this issue.</i>										
4j. Nutrient loadings to the Deben Estuary and frequent occurrence of algal blooms.	Undertake monitoring to support possible future designation as a Sensitive Area [Eutrophic].	Agency	unknown			■	■	■			Mark Johnson
	Manage the estuary, with interested parties, utilising outputs from developed water quality model.	Agency SWT, EN, SCDC, other interested parties	0.5k		■	■					<i>as above</i>
4k. Elevated copper and zinc levels in the Orwell Estuary.	Control metals in direct discharges.	AWS, Agency, Industry	0.5k	■	■	■	■	■		Consents standards are regularly reviewed and tightened as appropriate.	Chris Mc-Arthur/ Mark Johnson
	Develop best practices with marinas and boat yards in estuary system as part of National Strategy.	Agency, BMIF, boat & marina owners, operators & users	0.5k	■	■	■	■	■			<i>as above</i>
	Develop metals budget for Upper Estuary.	Agency	0.5k	■	■					This action is largely complete and, consequently, discharge improvements are in hand.	<i>as above</i>
	Initiate further monitoring to identify sources.	Agency, LAs	0.5k	■							<i>as above</i>

4.0 ACTIVITY TABLES

5. CONSERVING THE LAND

Land in the Plan area needs to be conserved and protected from flooding and contamination.

The sea defences along the Suffolk coastline were constructed to protect low lying communities and to reclaim agricultural land. The management of these defences is carried out by the Environment Agency routinely through the maintenance programme (Issue 5a). Capital flood defence schemes are set out by our Long Term Plan, the implementation of which is based on priorities and funding. The Long Term Plan is reviewed every 6 months. Capital projects are undertaken as necessary following approval from the Norfolk & Suffolk Flood Defence Committee.

A five year programme of flood risk mapping is being carried out in the Region according to priorities agreed with local planning authorities. These maps will show floodplain envelopes together with those areas which are already given increased flood protection by existing defences. Surveys will ultimately be supplied to planning authorities for inclusion in their development plans to prevent inappropriate development in the floodplains.

The Environment Agency is responsible for dissemination of flood warning information to those at risk in fluvial as well as coastal locations.

There is a risk of polluting leachate from closed landfill sites (Wangford I - Issue 5b and Tuddenham - Issue 5c) in the plan area, potentially contaminating soil and nearby watercourses.

Contamination has also occurred due to the disposal of assorted materials on former Ministry of Defence (MoD) land at Orford Ness over a decade ago (Issue 5d). Two of these dump sites have been characterised and material will be removed from grossly contaminated areas. Monitoring boreholes are to be set up enabling surveys of the local groundwater to be undertaken to assess the extent of contamination. To date, PCBs (polychlorinated biphenyls) have been identified as the most significant pollutant and these have also been detected in marine sediments close to the dumps. Action needs to be taken to ensure that there is no further seepage from the area into the local ecosystem. Consideration will be given, in due course, to designate this area as a 'special site' under Section 57 of the *Environment Act 1995*.



4.0 ACTIVITY TABLES

5. CONSERVING THE LAND (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
5a. Need to provide effective defence and warning systems to protect people and property against flooding from rivers and the sea.	Delivery of Flood Defence improvement and replacement, as identified in the Long Term Plan, complying with MAFF guidance, SMP and Flood Defence Strategies; for examples of schemes see Appendix E.	Agency	see Appendix E			see Appendix E					John Hesp
	Seek approval of, then implement Suffolk Shoreline Management Plan (SMP), Subcell 3c, Lowestoft to Harwich.	Agency, WDC, SCDC MAFF, landowners	unknown	■	■	■	■	■	■		John Hesp
	Prepare, adopt and implement Suffolk Estuaries Management Plan.	Agency, SCDC	unknown	■	■	■	■	■	■	This is a 'living document' to be reviewed every 5 years.	Clive Flanders
	Maintain existing defences.	Agency	Revenue	■	■	■	■	■	■		Stan Jeavons
	Improve the successful receipt of flood warnings and, over a 5-year period, achieve an 80% success rate for property flood warnings where a flood forecasting system exists.	Agency	unknown	■	■	■	■				Mike Steen
	Continue to progress the production of floodplain surveys in the Plan area.	Agency	unknown	■	■	■	■	■	■		Mick Whiley
5b. Potential impacts on the environment from contamination originating from Wangford I landfill site.	Capping of site with impermeable material.	Requires agreement between landowner and SCC	n/a		To be established following agreement between landowner and SCC					Ongoing monitoring of this site is carried out by the Agency, and will continue following the uptake of any, or all, of these options. Further remedial actions will be taken as necessary.	Simon Wood
	Trench interception of contaminated groundwater, subject to risk assessment.	as above	n/a		as above						as above
	System of boreholes to intercept contaminated groundwater.	as above	n/a		as above						as above
	Install gas extraction system (could be an extension of the system installed at the current landfill site).	as above	n/a		as above						as above

4.0 ACTIVITY TABLES

5. CONSERVING THE LAND (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
5c. Concern over the effect of a closed landfill site at Tuddenham on the River Fynn.	Establish ownership of contaminated land.	Agency	<1k	■							Simon Wood
	Site investigation of the old landfill to characterise contamination.	Agency, landowner	30k	■	■	■				Subject to Supplementation Credit Approval bid or separate project bid.	as above
	Trench interception system (with possible discharge to sewer or tankered off site and transferred to larger STW).	Agency, landowner	100k			■	■	■		No local facility to treat intercepted effluents. Not preferred option.	as above
	Reed bed creation.	Agency, landowner	20k			■	■	■		Sustainable option, therefore preferred. Need agreement from adjacent landowner.	as above
5d. The presence of toxic and persistent chemicals disposed of on Orford Ness may present a risk to the local ecosystem and recreational users.	Remove contaminants.	Merlin Communications International	n/a	■						Ongoing investigations are being carried out to remove material from significant contamination areas.	Simon Wood
	Undertake environmental monitoring.	Agency	2k	■	■	■	■	■	■		as above
	Undertake further site surveys, if necessary.	Merlin Communications International Agency	unknown								as above

4.0 ACTIVITY TABLES

6. MANAGING WASTE

Waste must be managed more sustainably (Issue 6a). The waste management hierarchy gives a guide to the best waste management options, which will vary depending on the circumstances. Reduction, or the avoidance of waste production is normally the best environmental option. This requires all waste producers (householders, commerce and industry) to examine their purchasing, packaging and processing practices to minimise waste. For this to happen, waste producers will need to be educated, persuaded or even pressurised into reducing their waste through such instruments as the landfill tax and new packaging regulations. Improved information from a programmed waste survey planned within the Agency should help identification of where waste minimisation initiatives should be targeted and where they have been successful. Section 5.4 in 'Protection through Partnerships' outlines some partnership initiatives where we are already taking a key role in promoting waste minimisation within industry. The Agency is also sponsoring research into Life Cycle Assessment (LCA) models for solid waste management which should help us provide a more pragmatic and accurate view on sustainable waste management.

A lot of waste can be avoided either by re-using items for their original purpose, until they become unfit for further service, or finding new uses for these materials or items before disposing of them. Encouraging re-use of waste can also help reduce the cost of waste transportation and save valuable landfill space.

Staff time and resources are required to undertake campaigns and the results may be difficult to measure. Ultimately, there need to be markets available for recycled material and a will from waste disposal companies to achieve waste minimisation and recycling targets. The recent Producer Responsibility Regulations on packaging waste will go some way to resolving this problem. The regulations oblige certain companies (about 4500 in total) to recover and recycle percentages of the packaging which they handle. This, in turn, will provide a financial incentive for the waste management industry to become more involved with minimisation and recycling, and ultimately will increase the availability of recycled products to the consumer. While these changes will not occur overnight, they are a step in the right direction. Detailed information on the relative success of each of the local authorities within the Plan area in achieving these targets has not been identified, but it is

likely that these targets are currently not being met.

The landspreading of wastes to agricultural land for agricultural benefits is exempt under the Waste Management Licensing Regulations 1994, however, when it is practised certain information must be provided to the Environment Agency. Present levels of notification are significantly lower than we would expect and we are concerned about possible illegal waste disposal. The disposal of certain types of controlled wastes on agricultural land has historically been common in the Plan area. However, since the requirement for waste and soil analyses was introduced, the Environment Agency has received no notifications that landspreading of wastes is to be carried out; written approval for the disposal activity has to be given by the Agency before it is allowed to begin. It seems unlikely that disposal of wastes in this way would simply cease, and therefore it may be necessary for the Environment Agency to carry out an intensive investigation of this type of activity in the area (Issue 6b).



4.0 ACTIVITY TABLES

6. MANAGING WASTE (continued)

Issue	Activity	Responsibility Lead <i>other</i>	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
6a. A perceived lack of best practice waste initiatives.	Identify appropriate local waste minimisation and recycling initiatives, and setting and monitoring of targets.	Agency, LAs, industry	14.4k p.a.	■	■	■	■	■	■		Patrick Pica
	Provide advice on resource efficiency and waste reduction to waste producers.	Agency <i>DTI</i>	14k p.a.	■	■	■	■	■	■		<i>as above</i>
	Provide leaflets/publicity campaigns for householders on waste reduction in the home.	<i>LAs Agency</i>	5k p.a.	■	■	■	■	■	■		<i>as above</i>
	Promote Agency Waste Minimisation and Waste Management Best Practice Guide.	Agency <i>LAs, DTI</i>	4k p.a.	■	■	■	■	■	■		<i>as above</i>
	Hold seminars and workshops to raise awareness and educate business and industry on the need to improve efficient use of resources.	Agency, LAs <i>DTI, Business Link</i>	25k p.a.	■	■	■	■	■	■		<i>as above</i>
	Facilitate Waste Minimisation Clubs.	Agency	unknown	■	■	■	■	■	■		<i>as above</i>
6b. Lack of information on land-spreading of waste (also see Issues 4a & b).	Increase inspection and enforcement presence in the area.	Agency	unknown						■	Policy development is in process.	Simon Wood
	Develop strategy on landspreading, to include possible actions such as obtaining information from waste producers about disposal methods and contractors, investigating contractors who have historically disposed of waste in this way and utilising the local knowledge of district and parish councils and local environment groups of what is happening.	Agency	unknown						■		<i>as above</i>
	Involve and educate the farming community of the nature of the problem.	Agency <i>Framlingham Farmers, landowners, farmers</i>	unknown						■		<i>as above</i>

4.0 ACTIVITY TABLES

7. REGULATING MAJOR INDUSTRIES EFFECTIVELY

As mentioned in Section 2, shipping is an important industrial activity within the LEAP area.

Many minor pollution and litter incidents arise from ship or landside activity in ports (Issue 7a). Some are subject to

control activities by the appropriate authorities to minimise environmental impact, but there is a need to further develop contingency plans to ensure that such incidents are effectively managed and to progress pollution prevention work in these areas.



Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact
7a. Adverse impacts originating from port and shipping activities in Ipswich, Felixstowe and Harwich areas.	Contingency planning.	Agency, HOWG	25k	■	■	■	■	■		Jointly funded.	Chris Mc-Arthur
	Pollution prevention inspections.	Agency	0.5k	■						Largely complete.	as above
	Education campaigns with shipping companies.	Agency, Port Authorities	0.5k	■	■	■	■	■		Financed by Port Authorities.	as above
	Construct boom-anchorage points.	Agency HOWG	0.5k	■	■						as above

4.0 ACTIVITY TABLES

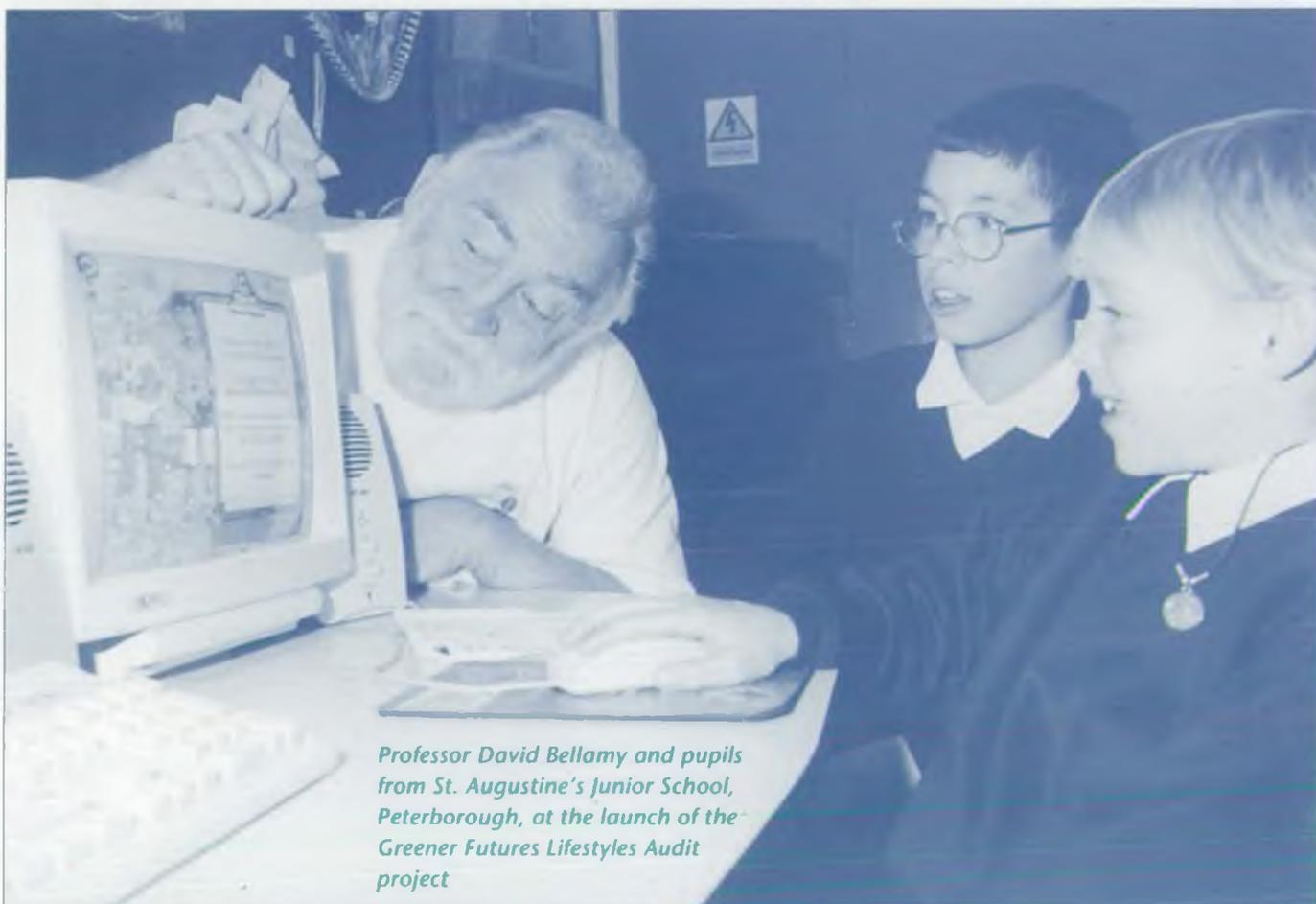
8. PUBLIC AWARENESS AND EDUCATION

Environmental education is a central means of furthering our commitment to sustainable development. Education offers people the capacity to address environmental issues, which is vital to achieving a sustainable society. Education, in its broadest sense, means personal awareness, experience and interest developed over a period of time, whether at home, school, college or university, at work, or in the wider community.

The Environment Agency consider environmental education to be vital and is actively developing an education service to help schools and colleges at all levels of the curriculum. We encourage local liaison and project-related work in the environment and provide several resource packs and data sets for students to use within their studies. An example of such a pack is the *Greener Futures* Lifestyles Audit Project which aims to gather data on the lifestyles of Year 5 (Key Stage 2) pupils and their families. This pack has been sent out to nominated schools in the area, and includes a CD-ROM comprising of a questionnaire, and information on a wide range of environmental issues. For ourselves and Peterborough Environment City Trust, who commissioned the project, an analysis of the findings of the audit will produce a bank of data about lifestyles and the environment which will help to inform our future policies and plans.

It is also part of our routine business to promote environmental education in other sectors of society, including business and industry, local authorities, including Local Agenda 21 groups (see Section 5.1) and other key players. The LEAP process positively contributes towards education in a fundamental way. We also undertake pollution prevention visits, attend road shows and science fairs, provide speakers, distribute educational documents and generally work in a pro-active way to protect the environment.

The potential educational benefit of protecting and enhancing the local environment has been highlighted during consultation. At a national level we have developed RIVERWORK, an education resource pack about the water environment for teaching Geography at Key Stage 2 of the National Curriculum. We also support National RiverWATCH, an educational project developed by WATCH, the junior section of RSNC, the Wildlife Trust Partnership, and sponsored by National Power. Anglian Region is keen to become actively involved with all interested parties, such as the National Trust and local authorities in promoting how improvements to local rivers, lakes and ponds can be achieved. The National Trust is planning significant educational roles at their properties at Dunwich, Orford Ness and Sutton Hoo, and would be interested in exploring any local liaison within this field.



Professor David Bellamy and pupils from St. Augustine's Junior School, Peterborough, at the launch of the Greener Futures Lifestyles Audit project

4.0 ACTIVITY TABLES

8. PUBLIC AWARENESS AND EDUCATION (continued)

Issue	Activity	Responsibility Lead other	Cost to Agency (£)	98/ 99	99/ 00	00/ 01	01/ 02	02/ 03	Fut- ure	Comment	Agency Contact	
8a. Need for promotion of local environmental issues via formal education channels.	The promotion of environmental education materials to local schools and colleges.	Agency, LAs, other interested parties	unknown	■	■	■	■	■			Regional Education Advisor	
	The development of environmental indicators with all interested parties and possibly adapt for use within primary/secondary schools within the Plan area	Agency, LAs, other interested parties	< 1k p.a.	■	■	■	■	■			Michael Guthrie	
	Supporting LA21 initiatives.	Agency, LAs, other interested parties	< 1k p.a.	■	■	■	■	■			as above	
	Produce and distribute LA21 Information Pack to local authorities and other interested parties.	Agency	< 1k			March 1998						as above
	Increasing awareness of business community regarding environmental responsibilities and the Agency's role.	Agency, SMEs, industry	< 1k p.a.	■	■	■	■	■			Various	
	Producing and disseminating information to increase awareness of local people and visitors about East Suffolk.	Agency, LAs, SWT, leisure industry, Tourist boards, other	< 1k p.a.	■	■	■	■	■			Various	

5.0 PROTECTION THROUGH PARTNERSHIP

The Environment Act 1995 (Section 4) describes how the Environment Agency should contribute towards the objective of attaining sustainable development. In particular, the Agency is advised to:

“strive to develop close and responsive relationships with the public, local authorities and other representatives of local communities, regulated organisations and public bodies with environmental responsibilities. It should also strive to work in partnership with all such groups”.

This partnership approach is an underlying theme of the LEAP process because, although the Environment Agency operates within an extensive regulatory framework, it is recognised that it has very little control over the mechanisms which determine land use change and, hence, pressures on the environment on a local basis. Also, LEAPs are non-statutory documents, so their policies and actions need to be incorporated into statutory documents, such as Local Authority Structure and Local Plans, to be truly effective.

We are currently involved in many projects and activities that rely on partnerships. Close links are already established with local authorities, water companies, industry, angling clubs, conservation bodies, port authorities, recreation and landscape bodies. New partnerships will be sought, both with these organisations and with others. It is hoped that joint funding initiatives and joint ownership of projects will provide a more secure basis for environmental protection.

Many other 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; see Section 4.0, Table 8. It is through these partnerships that we can fully contribute towards the goal of sustainable development.

This section outlines some of these partnerships within the LEAP area and the Eastern Area of the Anglian Region.

5.1 LAND USE

Land use has probably the single largest effect on the state of the local environment. As land use is the responsibility of local planning authorities through the Town and Country Planning system, it is particularly important for the Agency to work in partnership with these authorities to protect and enhance the local environment and to protect the natural floodplain.

STANDING CONFERENCE OF EAST ANGLIAN LOCAL AUTHORITIES (SCEALA)

SCEALA is made up of planning representatives from councils in Suffolk, Norfolk and Cambridgeshire. The

members of SCEALA have produced a strategy for regional development which was used by the Secretary of State to inform the Government Regional Planning Guidance Note (RPG6). This document stated *inter alia* that the overall objective for East Anglia must be to achieve environmentally sustainable growth and that this should be the key theme when updating Structure Plans. The Environment Agency has been involved in discussion on the Technical Panel of SCEALA. In particular, this has focused on the issue of water supply and whether future development may be restricted by this vital resource. These discussions, which also include talks on the economy, the general environment, development and transport, are ongoing. The Agency is also working with the counties that make up SCEALA in the hope of providing them with information on the types and quantities of waste and the availability of waste facilities.

DEVELOPMENT PLANS

At a strategic level, local authorities are responsible for producing statutory development plans which set out the framework for land use change. The Agency works closely with local authorities to ensure that policies to protect and enhance the environment are included in the development plans. The Agency is currently developing a series of land use policies for inclusion in development plans nationally.

DEVELOPMENT CONTROL

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 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. For example, Suffolk Coastal District Council are committed to a programme of enhancement for village and town centres, including a scheme for Saxmundham which potentially involves re-profiling the River Fromus. We will be supporting the council to ensure that the benefits to the town are in harmony with the river environment.

FUTURE DEVELOPMENT OF REDUNDANT AIRFIELDS

Of particular concern to the Environment Agency is the number of redundant airfields within the catchment at Debach, Ellough (part), Parham, Leiston, Holton, Martlesham, Rattlesden, Mendlesham (part), Bentwaters, and Woodbridge. We will work with developers and local authorities to ensure that there is control over development and use of these airfields with respect to the surface water drainage discharges. There are a number of redundant MoD airfields in the catchment where changes have taken place or are proposed. The surface water drainage systems at most of these sites are complicated and the drains, generally, have not been mapped. A number of significant pollution incidents arising from these airfield sites have occurred in the past and without adequate control over future use, these sites pose a further pollution threat.

5.0 PROTECTION THROUGH PARTNERSHIP

LOCAL AGENDA 21

Local Agenda 21 (LA21) has been adopted to ensure that sustainable development is achieved on a local scale. Within the East Suffolk Plan area, LA21 is at varying stages of production.

The Environment Agency will, where practicable and relevant to our work, provide environmental information and work with others to achieve the objectives of sustainable development. We support and contribute towards Local Agenda 21 initiatives within the Plan area; see Section 4.0, Table 8. For example, we have had considerable input as part of the 'Greenprint Environment Forum', set up by Suffolk Coastal DC. Other local authorities are also formulating LA21 strategies; the Mid Suffolk Environment Forum has produced a document called *Making a Difference*, outlining the history behind LA21 and listing seven steps to sustainability.

We are currently producing a Local Agenda 21 Information Pack for local authority officers as well as voluntary and community groups, which will set out how the Agency can contribute to the LA21 process.

5.2 CONSERVATION

BIODIVERSITY ACTION PLANS

The Environment Agency are part of the Anglian Regional Biodiversity group aimed at translating the national initiative of biodiversity into a Regional context. At a local level, local authorities and environmental organisations, including the Environment Agency, are compiling a Suffolk Biodiversity Action Plan with targets for specific habitats and species, many of which are relevant to this area. We can influence many of these targets since Action Plans will be concerned with coastal habitats, wetlands and aquatic species such as otter and crayfish. As such, we are playing an active role in the production of the Biodiversity Action Plan and taking on specific responsibility to progress Action Plans for key species and habitats; also see Section 4.0, Table 2. The conservation of biodiversity will be a key indicator of the successful implementation of sustainable development in the Plan area.

ENHANCEMENT PROJECTS

The Environment Agency has developed many partnerships to implement environmental enhancement. We have carried out improvements to Darsham Marsh Nature Reserve in conjunction with Suffolk Wildlife Trust, improved the management of riverine trees with the Gipping Countryside Management Project and improved the management of the Pennings Nature Reserve with Mid-Suffolk District Council. Issue 2b also mentions further enhancement projects under way in the Plan area.

COASTAL PROTECTION

Within the framework of the Shoreline Management Plan, we are continuing to develop liaison processes with the relevant District Councils who have responsibilities for cliff erosion under the *Coast Protection Act 1945*. This will ensure

that our respective coastal and sea defence activities are complementary and do not have any adverse effect on adjacent frontages.

SUFFOLK COAST AND HEATHS PARTNERSHIP

The Suffolk Coast and Heaths Partnership Project has an overall purpose of promoting and coordinating sustainable management for the area. The project is administered through a Joint Advisory Committee, of which the Environment Agency along with other organisations, for example local authorities, recreational user groups and other interested parties, are members.

The *Stour and Orwell Estuaries Management Plan* was coordinated by a sub-group of the Suffolk Coast and Heaths Partnership whereby each partner aims to coordinate their work to conserve and enhance the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). This sub-group is collectively known as the Estuaries Group and includes the Environment Agency. The shared objectives formulated in the document are to maintain and enhance wildlife conservation and landscape, improve and extend facilities for recreation, resolve existing conflicts between interests and support and encourage sustainable agriculture. As a member of the Estuaries Group, we are aware of, and aim to achieve, the objectives set out by the Estuaries Management Plan and will work in partnership with the other members of the Group to protect this area of East Suffolk.

COUNTRYSIDE STEWARDSHIP

This is a MAFF grant scheme run by the Farming and Rural Conservation Agency (FRCA), which offers payments to farmers and other land managers to encourage changes in management to enhance and conserve important landscapes and wildlife habitats, and to produce conservation benefits and improved access and enjoyment of the countryside. The Agency is looking to coordinate improvements along river corridors through this scheme.

WATER LEVEL MANAGEMENT PLANS

The implementation of Water Level Management Plans (WLMPs) requires partnerships between all individuals and organisations who have an interest within a Plan area such as English Nature, Wildlife Trusts, the Royal Society for the Protection of Birds (RSPB), the Farming and Rural Conservation Agency (FRCA) and owners and occupiers. As the operating authority, the Environment Agency has prepared eight separate WLMPs for parts of the East Suffolk LEAP area. The Environment Agency aim to integrate the views of all the relevant interests at the site to ensure that a balanced and sustainable water level regime is adopted. Other operating authorities are also producing WLMPs and the Environment Agency work closely with these bodies, to ensure full consultation and appropriate objectives are reached. The implementation of the WLMPs objectives depends upon the approval and cooperation of all the relevant interests and initiatives for joint funding between the interested parties to ensure that these wetland conservation sites are protected and enhanced.

5.0 PROTECTION THROUGH PARTNERSHIP

ARCHAEOLOGY

As mentioned in Issue 2a, a large enhancement project is in progress at Framlingham Mere to restore the mere habitat. This project is receiving over £300k from the Heritage Lottery Fund and the work is being carried out by Framlingham College (the site owner), Suffolk Wildlife Trust, who run the site as a nature reserve, and the Environment Agency. Due to the proximity of the mere to Framlingham Castle a full archaeological survey has been carried out by the Royal Commission on the Historical Monuments of England (RCHME). This survey has highlighted the management, development and usage of the site since the 11th Century.

5.3 WATER RESOURCES

DEVELOPMENT AND WATER SUPPLY

The Environment Agency works closely with Anglian Water Services and Essex & Suffolk Water to manage water resources in the area to achieve the proper balance between the needs of the environment and other water users. We operate our abstraction licensing system to regulate the water companies and other abstractors to ensure sustainable use of water resources and to protect the environment. Where water resources are fully committed locally, water can usually be supplied from elsewhere for public supply. However, it is vital that development does not proceed ahead of the necessary resources and infrastructure and that the full costs (including social and environmental) are considered. The Environment Agency will work with the relevant water supply companies and planners to ensure this is achieved. We will want sustainable water supplies to be agreed and demonstrated before development takes place.

The Environment Agency is also placing greater emphasis on demand management where this will reduce pressures on the environment or prevent the need for the development of new resources. We encourage measures such as leakage control and metering programmes undertaken by water companies, and initiatives to build water conservation into new developments - for example through low water use appliances.

INVESTMENT BY WATER COMPANIES

The Environment Agency continually influences the water companies to ensure that capital investments for environmental improvements to infrastructure are prioritised. Our influence on these matters is exerted through discussions with the water companies, the Department of the Environment, Transport and the Regions (DETR), and the Office of Water Services (Ofwat), over statutory and non-statutory requirements. Whilst water companies work with the Agency to achieve environmental improvements, their expenditure is limited by Ofwat and some improvements desired by the Agency, such as over-performing STWs (see Table 4, Issue 4e), are not currently feasible as they can only meet their statutory obligations. Any further improvements beyond their statutory

obligations must be funded from elsewhere or dropped in the short term.

ARTIFICIAL RIVER SUPPORT FROM EFFLUENT DISCHARGES

Many rivers in this area carry a high proportion of effluent, which effectively artificially supports the river. If this effluent was ever to be diverted, this often critical input into a river catchment could disappear, leading to a consequent loss of resource. Although we have little influence on potential changes to these inputs, the Environment Agency will seek early consultation with Anglian Water Services, so that they inform us if they are thinking of making such changes.

5.4 WASTE MANAGEMENT

WASTE MINIMISATION SCHEMES

As part of the Government's waste strategy, we are taking a key role in promoting waste minimisation within industry. In the Agency's Eastern Area a number of initiatives are either underway or at the planning stage; also see Table 6, Section 4.0, for further information on waste management.

The project on which we have been working with Bernard Matthews Foods Limited and UK Waste Management Limited is thought to be the first of its kind. Our officers have conducted audits at six of Bernard Matthews' processing sites, and a series of recommendations - which include identifying potential savings - have been made to the company. One site is within the Plan boundary and the audits we have undertaken have allowed us to develop expertise in this field which will eventually be applicable to the entire Plan area. However, it is already apparent that this work will identify opportunities for significant waste reductions.

We already offer advice to companies on how to reduce the use of raw materials, water and energy, as well as recycling of waste materials such as packaging waste, and intend to develop this work. We are currently trialing the *Waste Minimisation and Waste Management Best Practice Guide* produced by the Agency, and hope that some companies in the Plan area will be involved in this. The Guide demonstrates how companies can go about establishing waste minimisation initiatives, and is supported by visits and telephone advice from Agency staff as needed. If the trial is successful, it is intended that the document will be published and used as the basis for expanding our work with industry in this field.

We also intend to become involved in minimisation of household waste, and it is hoped that it will be possible to set up a community-based scheme in the Plan area in partnership with Suffolk Coastal District Council and possibly other relevant bodies. This project is still at a very early stage.

LITTER

On riverbanks the responsibility of litter removal lies with the riparian owner. We do have permissive powers for

5.0 PROTECTION THROUGH PARTNERSHIP



Litter pollution on the Orwell

maintenance work granted to reduce the risk of flooding. Debris clearance is therefore carried out according to such flood risk priorities, but we have limited resources available to clear rubbish for purely aesthetic reasons and generally prefer to encourage riparian owners to undertake the necessary work.

Raising public awareness of the potential impact of such activities on flooding, water quality and safety is an issue that we, in partnership with the Tidy Britain Group, local authorities and local community action groups are trying to address by well-publicised litter picks which involves local communities in the management of riverside environments. We have worked with local authorities at Waldringfield, Orwell, Felixstowe and Kessingland as part of our overall environmental strategy.

5.5 OTHER PARTNERSHIPS

IMPROVING RECREATIONAL OPPORTUNITIES

The Environment Agency works closely with many countryside management projects, for instance, through our involvement in the Suffolk Coast and Heaths partnership, the Gipping Valley Countryside Project and the Greenways project, to improve recreational opportunities in the Plan area. Another example is the restoration of the Ipswich and Stowmarket Navigation canal which became derelict earlier this century but is now subject to restoration by the Inland Waterways Association. Works have taken place at a number of locations with approval and cooperation of the local authorities and Agency officers and the towing path is available for public use along most of the full length.

FISHERIES MANAGEMENT AND ENHANCEMENT PROJECTS

The Agency will, whenever practical, join with or assist Angling Clubs and Fisheries Owners (including local authorities) in the design and implementation of fisheries management schemes, particularly on stillwater fisheries. The extent of the Agency's involvement will vary, and may range from straightforward verbal advice to the deployment of staff and/or equipment to provide direct practical assistance with fish stock assessment or fish removals/transfers. Every effort is made to ensure that good quality fisheries management advice is always available, that any fish stocks under threat from water loss or pollution are rescued as appropriate, and that all reported cases of fish mortality or disease are investigated. The funding of platforms for disabled anglers on the River Gipping is one recent example.

SHELLFISH HARVESTING

Responsibility for compliance with the EC Shellfish Hygiene Directive lies with the District Council Environmental Health Department. However, the Environment Agency and Environmental Health Officers liaise regularly to discuss problems and promote investigations.

Within the Plan area there are commercial shellfisheries in operation at the Butley Oysterage, near Orford and a Pacific Oyster fishery in the River Blythe at Wolsey Creek. Other estuary sites have the potential for shellfish harvesting and occasional gathering takes place at these locations.

OIL SPILL CONTINGENCY PLANS

Control of marine oil spillages that occur within the Plan area will be subject to actions and procedures with our partners, in a similar manner to those currently developed for the Harwich Haven complex, where a Memorandum of Understanding exists between the Port Authorities and the Environment Agency.

In the event of a significant oil spill the County and District/Borough Councils and the Marine Pollution Control Unit will all be involved with the Environment Agency in protecting and cleaning operations.

6.0 FUTURE REVIEW AND MONITORING

The Environment Agency will be jointly responsible, with other identified organisations and individuals, for implementing this Action Plan. Progress will be monitored and normally reported annually. These Annual Reviews will examine the need to update the Plan in the light of changes. The period between major revisions will normally be five years.

Further copies of this Action Plan can be obtained from:

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Environment Agency
Anglian Region
Eastern Area
Cobham Road
IPSWICH
Suffolk IP3 9JE**

Telephone: 01473 727712 ext. 4750

E-mail: jenny.waterworth@environment-agency.gov.uk

(Please note, however, that the Report is not available on the Internet)

APPENDIX A: The Role of the Environment Agency

Flood Defence has the role of protecting people and the developed environment from flooding by providing effective defences and protection of floodplains. Safeguarding life is our highest priority and to meet this aim we provide a flood forecasting and warning service. Flood Defence also aims to protect and enhance the natural environment by promoting works that are sustainable and work with nature.

The **Water Resource** function comprises the conservation, redistribution and augmentation of surface and groundwater supplies. It includes the powers to encourage water conservation and to promote transfer schemes and to balance the needs of water users and the environment by issuing licences for users to abstract water from rivers and boreholes.

The **Pollution Control** function includes:

- **Integrated Pollution Control (IPC)** regulating the most polluting, or technologically complex, industrial and other processes in air, on land or in water.
- **Water quality and pollution control** which prevents and controls pollution and monitors the quality of rivers, estuaries and coastal waters.
- **Radioactive Substances** regulating the disposal of radioactive material, including that from licensed nuclear sites, and regulating the accumulation, keeping and use of radioactive materials, except from licensed nuclear sites.
- **Waste Regulation** setting consistent standards for waste management practice to regulate the treatment, storage, movement and disposal of controlled waste. The Agency also has a requirement to register and monitor those who produce waste, and qualify under the Packaging Regulations, imposing obligations to reuse, recover or recycle products and materials. The Agency's policies and powers regarding waste are implemented in a number of ways:
- **Licensing waste management facilities** including landfill sites, waste transfer stations, treatment plants, some scrap yards and waste storage facilities.
- **Inspecting and monitoring** these facilities to ensure that there is no pollution or harm to human health caused by the activities.
- **Investigating the unauthorised deposit of waste**, including fly-tipping.
- **Visiting local industry and giving advice** regarding waste management, including re-cycling and waste minimisation.
- **Checking that those waste management activities** which are exempt from waste licensing are being carried out in accordance with the terms of the exemption.

- **Taking enforcement action** where necessary and responding to emergencies.
- **Reporting on the extent of contaminated land and contributing to its management** (primarily undertaken by local authorities).
- **Abandoned mine operators** are also required to work with the Agency so that steps can be taken to prevent minewater pollution in the future.

The Environment Agency is responsible for maintaining, improving and developing **Fisheries**. This is carried out by licensing, regulation and enforcement schemes which cover salmon, sea trout, non-migratory trout, coarse and eel fisheries. The Agency also monitors fisheries, implements habitat and stock protection and enhancement measures, investigates fish disease and mortalities, and provides advice to Angling Clubs, Fishery Owners and all members of the public.

The **Navigation** function is responsible for managing and improving over 800km of inland waterways, the Harbour of Rye and Dee Estuary. Its aim is to make these resources widely available to the public for water or land based recreational use. Note that this function is not relevant for this catchment.

The Agency must also take account of **Recreation** and access. More than 1000 sites in our control are managed for recreational use. We also have a general duty to promote the recreational use of water and land throughout England and Wales.

In fulfilling all its functions the Environment Agency is required to contribute to the **Conservation** of nature, landscape and archaeological heritage. We have a regard to conserving and enhancing flora, fauna, geological or physiographical features when carrying out our pollution control functions, and a duty to further conservation when carrying out our other functions. We also have a duty generally to promote the conservation of flora and fauna dependent on the aquatic environment.

Environmental Health issues, including noise and light pollution, should be directed to your Local Authority, as should waste collection services and local waste recycling and minimisation schemes.

FURTHER INFORMATION

Further information on the work of the Agency can be found in a series of Agency strategy documents covering water quality, water resources, flood defence, fisheries, conservation, navigation, recreation, and research and development. These documents are available from the Corporate Planning Section at the Agency's head office in Bristol.

We maintain several public registers which can be inspected at most Regional Environment Agency Offices. Information

APPENDIX A: The Role of the Environment Agency

is usually provided free of charge, but for large and complex requests we may charge for staff time and materials. There are also standard charges for some specific searches. Further details about our public registers and the types of information we hold are available in our leaflet *A Guide to Information Available to the Public*. Copies are available from the Public Relations Department at our Peterborough office and Area Customer Services.

A present, offices may have information relevant only to their local area; please telephone before visiting to ensure that the information required is available at your local office.

Some environmental details and information about our public registers are available on the internet on <http://www.environment-agency.gov.uk>.

APPENDIX B: Consultees who responded to Consultation Report

Anglian Water
British Marine Industries Federation
(The) Coal Authority
Country Landowner Association (CLA), represented by
Barker Gotelee Solicitors
Countryside Commission
(The) Crown Estate
Eastern Sea Fisheries Joint Committee
East of England Tourist Board
English Heritage
English Nature
Forest Enterprise
Framlingham Farmers Limited
Government Office for Eastern Region
(The) Inland Waterways Association
Ipswich Borough Council
National Farmers Union (NFU)
(The) National Trust
Mid-Suffolk District Council

Ministry of Agriculture, Fisheries and Food (MAFF)
Mr T G Pryke
Mr T H Darby
Royal Society for the Protection of Birds (RSPB)
Royal Yachting Association
Sir Edward Greenwell, Bt.
Suffolk Coast and Heaths Project
Suffolk Coastal District Council
Suffolk County Council Members
Suffolk County Council Environment and Transport
Department
Suffolk Waste Disposal Company Limited
Suffolk Wildlife Trust
Sutton Hall Farms
Tidy Britain Group
TransPlan (Transport and Planning Research Network)
Waveney District Council
Woodbridge and District Angling Club

APPENDIX C: Errors in the Consultation Report

SECTION	ERROR	RAISED BY
2.0	Suffolk Coasts and Heaths AONB lies wholly within the Plan area, not partly.	Suffolk Coast & Heaths Project
Issue A1	The end of the second sentence in 'Background' should readof two to three million years ago.	English Nature
Issue C3	The old radar site is no longer owned by the Foreign and Commonwealth Office as it has been sold to Merlin Communications International. The Foreign and Commonwealth Office financed the remedial clean-up work carried out to date, not the MoD.	National Trust
5.2.3	Statutory duties of the National Trust should be included in 'other organisations'.	National Trust
5.3	Role of the National Trust in the preservation of the archaeological heritage of the area should be included.	National Trust
5.3.3	Regulatory Framework should also refer to PPG16 on Archaeology and Planning.	National Trust
5.5.2	'Ports, Harbours and Commercial Navigation' section, mentioned in the last paragraph is missing.	Inland Waterways Association
5.9.3	Regulation of marine aggregate licences is the responsibility of the DETR (formerly DoE). MAFF is a consultee along with other Government Departments, Local Government, Conservation Bodies, the Agency, and the general public (by advertisement). The Crown Estate will only issue a licence to extract marine aggregates if there is a favourable Government View from DETR.	The Crown Estate
5.11.2	The local picture is incorrect, and seems to pre-date the 1987 hurricane which devastated about 50% of the forests. The windblown areas have been cleared and replanted and there will be very little clear felling in the next 20 years. Pesticide use is very limited and will be almost nil until felling and replanting starts again on a significant scale.	Forest Enterprise
5.11.3	MAFF are a valid source of guidance generally, rather than only in areas of arable farming as suggested in this paragraph. Reference to the Countryside Stewardship Scheme should reflect more accurately the aims of the Scheme; 'The Countryside Stewardship Scheme encourages changes in management to enhance and conserve important landscapes and wildlife habitats, and to produce conservation benefits and improved access and enjoyment of the countryside'.	MAFF
5.12.2, p87	MAFF's highest grant rate for Sea Defence work is 75%, not 65%, and the money raised from the 'General Drainage Charge' should be mentioned.	Sir Edward Greenwell Bt.
5.16.2, p96	There is also a small, but thriving, Pacific Oyster (<i>Crassostrea gigas</i>) fishery in the River Blythe at Wolsey Creek where the shellfish are grown on trestles and purified in tanks prior to marketing.	Eastern Sea Fisheries JC
6.11	Water quality monitoring is also undertaken by Waveney DC at Kessingland.	Waveney DC
6.12	There are still current shell fishery layings in the Blyth Estuary, for which the Council has issued the necessary approval under Directive 91/492/EEC.	Waveney DC
Various	The Local Authorities' role has been omitted in relation to the investigation of drainage complaints (p66), monitoring for pesticides in private water supplies (p101), the monitoring of bathing water quality (p118), the monitoring of water quality in shell fisheries (p119), the monitoring of radioactivity through the ERMIS Scheme (p128) and the monitoring of air quality (p132).	Suffolk Coastal DC

APPENDIX D: Guide to Consultation Report and Action Plan Issues

CROSS REFERENCE TO CONSULTATION REPORT ISSUES

Consultation Report No.	Action Plan No.	Issue Title in this Action Plan <i>Issue Title from the Consultation Report</i>
A1	4a	Impacts on the environment arising from land and water use in parts of the Sandlings area. <i>Impacts on the environment arising from land use in parts of the Sandlings area.</i>
A2	4g	A number of river stretches fail to achieve their existing river ecosystem target class for unknown reasons. <i>as above for Action Plan.</i>
A3	4f	A number of river stretches fail to achieve their existing river ecosystem target class due to factors that cannot be attributed to point-source pollution. <i>as above for Action Plan.</i>
A4	1b	Flows in the River Deben decline to an environmentally unacceptable level during the summer period. <i>as above for Action Plan.</i>
A5	1c	Concern over the potential impact of declining flows of small streams running across intertidal areas within SPAs. <i>as above for Action Plan.</i>
A6	2a	Lack of habitat diversity within rivers and their floodplains. <i>as above for Action Plan.</i>
A7	2c	Need to protect key habitats and species in the Plan area as a whole. <i>Ensure that Environment Agency activities comply with new and existing EU Directives concerning nature conservation.</i>
A8	3a	Failures in fisheries biomass targets. <i>Investigate and, where possible, ameliorate failures in fisheries biomass targets.</i>
A9	2b	Need to assess and, where appropriate, protect the ecological status of the headwaters of rivers. <i>as above for Action Plan.</i>
A10	4h	Operation of Blyford Water Control Structure has implications for the upstream ecology, fishery, water quality impacts and river bank stability. <i>Operation of Blyford Water Control Structure has implications for the upstream ecology, fishery and water quality impacts.</i>
B1	4c	Threat of pollution to the public water supply abstracted from surface and groundwater sources in the River Gipping catchment. <i>as above for Action Plan.</i>
B2	5a	Need to provide effective defence and warning systems to protect people and property against flooding from rivers and the sea. <i>Requirement to provide estuarial, coastal and fluvial flood protection.</i>
C1	5b	Potential impacts on the environment from contamination originating from Wangford I landfill site. <i>Impacts on the environment from contamination originating from Wangford I landfill site.</i>
C2	5c	Concern over the effect of a closed landfill site at Tuddenham on the River Fynn. <i>as above for Action Plan.</i>
C3	5d	The presence of toxic and persistent chemicals disposed of on Orford Ness may present a risk to the local ecosystem and recreational users. <i>The presence of toxic and persistent chemicals disposed of on Orford Ness have had an adverse impact on the groundwater and local ecosystem.</i>
C4	4i	Concern regarding eutrophication of the freshwater environment of the River Deben. <i>as above for Action Plan.</i>
C5	4j	Concern over nutrient loadings to the Deben Estuary and the frequent occurrence of algal blooms. <i>as above for Action Plan.</i>
C6	4d	Poor water quality in receiving surface waters downstream of Leiston. <i>as above for Action Plan.</i>

APPENDIX D: Guide to Consultation Report and Action Plan Issues

CROSS REFERENCE TO CONSULTATION REPORT ISSUES (continued)

Consultation Report No.	Action Plan No.	Issue Title in this Action Plan <i>Issue Title from the Consultation Report</i>
C7	4e	Concern over potential deterioration of river water quality, where present effluent quality is better than the current legal consent. <i>as above for Action Plan.</i>
C8	4b	Effluent disposal from livestock sources in the High Suffolk Area is an environmental issue. <i>A high proportion of pollution incidents are derived from livestock sources.</i>
C9	6b	Lack of information on landspreading of waste. <i>Disposal of waste to agricultural land.</i>
C10	7a	Adverse impacts originating from port and shipping activities in Ipswich, Felixstowe and Harwich areas. <i>as above for Action Plan.</i>
C11	4k	Concerns with respect to elevated copper and zinc levels in the Orwell Estuary. <i>as above for Action Plan.</i>

NEW ISSUES

1a	Lack of groundwater monitoring, particularly in the Sandlings area.
3b	The current distribution of river reaches designated under the EC Freshwater Fisheries Directive does not adequately reflect the distribution of important fish stocks for which protection is required.
6a	A perceived lack of best practice waste initiatives.
8a	Need for promotion of local environmental issues via formal education channels.

APPENDIX E: Examples of Capital Flood Defence Schemes for East Suffolk within the Environment Agency's Long Term Plan

Flood Defence Scheme	Total Cost (£)	Start date	End date
Felixstowe Ferry Sea Defences	520k	August 1999	June 2000
Aldeburgh Groyne Refurbishment	1430k	April 2000	April 2002
Ipswich Flood Defences	404k	April 1998	April 1999
Hollesley Pumping Station	651k	April 1999	April 2001

Example extract from the Environment Agency's Flood Defence Long Term Plan -

Total costs are calculated as total Grant Eligible Expenditure + total Non-Grant Eligible Expenditure.

APPENDIX F: GLOSSARY

abstraction licence - licence issued by the Environment Agency under s.38 of the Water Resources Act 1991 to permit removal of water from a source of supply. It can limit the quantity of water taken daily etc.

Agenda 21 - a comprehensive programme of worldwide action to achieve more sustainable development for the next century. UK Government adopted the declaration at the UN Conference on Environment and Development (the Earth Summit) held in Rio de Janeiro in 1992.

aquifer - a permeable geological stratum or formation that is capable of both storing and transmitting water in significant amounts.

Asset Management Plan (AMP) - means by which the water undertakers plan the work required and Asset Management capital expenditure necessary for improvements and maintenance of Plan. These are drawn up through consultation with the Environment Agency and other bodies to cover a five year period. AMPs have to be agreed by DETR and OFWAT.

Area of Outstanding Natural Beauty (AONB) - designated by the Countryside Commission under the National Parks and Access to the Countryside Act 1942, to conserve and enhance the natural beauty of the landscape, mainly through planning controls.

baseflow - the flow in a river derived from groundwater sources.

Biochemical Oxygen Demand (BOD) - a standard test which measures over 5 days the amount of oxygen taken up by aerobic bacterial to oxidise organic (and some inorganic) matter.

biodiversity - diversity of biological life, the number of species present.

Biodiversity Programme - this is specific to Anglian Water Services - the Biodiversity Programme allocates investment, outside of their Asset Management Plan (AMP), made at the announcement of interim and final results. Funding is being targeted at a broad range of environmental improvements - reed beds at STWs, resolving oil problems from surface water sewers, conservation schemes, etc.

catchment - the total area from which a single river collects surface runoff.

consent (discharge) - a statutory document issued by the Environment Agency under Schedule 10 of the Water Resources Act 1991 as amended by the Environment Act 1995 to indicate any limits and conditions on the discharge of an effluent to a controlled water.

consent (land drainage) - an approval for specified structural works in areas under Environment Agency control.

dangerous substances - substances defined by the European Commission as in need of special control because of their toxicity, bioaccumulation and persistence. The substances are classified as List I or II according to the Dangerous Substances Directive.

demand management - activities to manage the amount of water required from a source of supply; includes measures to control waste and/or discourage use.

diffuse pollution - pollution without a single point source e.g. acid rain, pesticides, urban runoff etc.

dissolved oxygen (DO) - the amount of oxygen dissolved in water. Oxygen is vital for life so this measurement is an important, but highly variable, indicator of 'health' of a water. It is used to classify waters.

EC Directive - type of legislation issued by the European Union / Community / Commission which is binding on Member States in terms of the results to be achieved but leaves to Member States the choice of methods.

Environmentally Sensitive Area (ESA) - an area designated by MAFF where grant aid is available to support traditional farming methods.

eutrophication - the enrichment of water by nutrients, such as compounds of nitrogen or phosphorus. It causes an accelerated growth of algae and higher forms of plant life, changes in the ecological balance and deterioration in water quality.

floodplain - parts of river valleys or coastal plains which are inundated during floods. It includes areas protected by flood defences.

fluvial - pertaining to, or found in freshwater rivers.

General Quality Assessment (GQA) - a scheme used to make regular assessments of the quality of rivers to monitor trends over time and to compare rivers in different areas. Four components are being developed for the GQA assessment; general chemistry, nutrients, aesthetics and biology, each providing a discrete 'window' on the quality of the river stretches. Currently only two are in use; Chemistry and Biology. The remaining two GQA windows are still under development and will be applied when available.

groundwater - water contained in the void spaces in pervious rocks and within the soil.

habitat - customary and characteristic home of a species or community.

headwater - streams close to their source.

Heritage Coast - The finest example of a coastal and adjacent inland area as designated, through cooperation between the Countryside Commission and local authorities, for its protection and enhancement of enjoyment by the public.

hydrology - the study of water, above, on and below the earth's surface, and its dynamics.

in-river-needs - the requirement for an acceptable regime of river flows necessary to sustain legitimate 'in-river' uses, including biological requirements and human uses, such as navigation, power generation and amenity.

Integrated Pollution Control (IPC) - an approach to pollution control in the UK which takes account of potential effects upon all environmental media. Applies to prescribed processes and uses the principles of BATNEEC and BPEO.

Internal Drainage Board (IDB) - authorities responsible for dealing with land drainage within a district, independent of the Environment Agency. They are primarily concerned with agricultural land drainage but also may be involved with water supply to their district for agricultural purposes.

landfill site - the engineered deposit of waste into or onto land so that pollution or harm to the environment is minimized or prevented and, through restoration, to provide land which may be used for another purpose.

leachate - solution formed when water percolates through a permeable medium. Can be mineral-rich, toxic or carry bacteria.

leaching - the washing out of a soluble constituent.

Local Agenda 21 - A comprehensive programme of worldwide action to achieve a more sustainable pattern of development for the next century. UK Government adopted the declaration at the UN Conference on Environment and Development (the Earth Summit) held in Rio de Janeiro in 1992.

Main River - the watercourse shown on the statutory 'Main River maps' held by Environment Agency and MAFF, designated under the Water Resources Act 1991. The Environment Agency has permissive powers to carry out works of maintenance and improvement on these rivers. Formal consent is required for all activities that interfere with the bed or banks of the river or obstruct the flow.

maintenance works - regular river maintenance such as desilting or weed control.

APPENDIX F: GLOSSARY

Permissive powers - powers which confer the right to do things but not the duty.

Plan area - referring to the East Suffolk Local Environment Agency Plan (LEAP) area

reach - a length of channel.

rehabilitation - the partial return to a pristine state.

restoration - the return to a pristine state.

riffle - shallow, stony or gravelly part of river bed where the water surface is broken in low flows.

riparian - relating to or situated on the bank of a river or stream.

riparian owner - owner of land next to river; normally owns river bed and rights to mid-line of channel.

river corridor - land which has visual, physical or ecological links to a watercourse and is dependent on the quality or level of the water within the channel.

River Habitat Survey (RHS) - an inventory of physical features of the river and adjacent habitat.

River Needs Consents (RNC) - permissions for discharge of effluents, that often specify limits for certain potential pollutants and ensure that the discharge does not derogate any of the uses of the controlled water.

River Quality Objective (RQO) - the level of water quality that a river should achieve to be suitable for its agreed uses.

runoff - water moving over a catchment surface. Normally regarded as rainfall minus evapotranspiration (evaporation and loss

of water by plants) but commonly used to mean rainwater flowing across the land (also known as overland flow).

S105 surveys - section 105 of the Water Resources Act 1991 allows for Standards of Service, Assets and Flood Risk Surveys.

sewage - liquid waste from cities, towns and villages which is normally collected and conveyed in sewers for treatment and/or discharge to the environment.

sewerage - a system of underground pipes designed to carry sewage to Sewage Treatment Works.

Special Protection Areas (SPAs) - statutory protected habitats for wild birds under EC Birds Directive 79/409/EEC.

Special Area of Conservation (SAC) - areas designated under the EC Habitats Directive. Sites that are considered to be of international importance for key habitats and species.

Structure Plans - statutory documents produced by County Councils outlining their strategy for development over a 10-15 year timescale.

surface water - general term used to describe all the water features such as rivers, streams, springs, ponds and lakes.

sustainable development - development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

wetlands - areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt.

APPENDIX G: ABBREVIATIONS AND UNITS

AEG	Area Environment Group	EPA	Environmental Protection Act	RPG	Regional Planning Guidance
Agency	Environment Agency	ESA	Environmentally Sensitive Area	RQO	River Quality Objective
ALF	Alleviation of Low Flows	ESFJC	Eastern Sea Fisheries Joint Committee	RSPB	Royal Society for the Protection of Birds
AMP	Asset Management Plan	FE	Forest Enterprise	SAC	candidate Special Area of Conservation
AONB	Area of Outstanding Natural Beauty	GQA	General Quality Assessment	SCC	Suffolk County Council
AWS	Anglian Water Services	HMIP	Her Majesty's Inspectorate of Pollution	SCDC	Suffolk Coastal District Council
BATNEEC	Best Available Techniques Not Entailing Excessive Cost	HOWG	Haven Oil Working Group	SCEALA	Standing Conference of East Anglian Local Authorities
BC	Borough Council	IDB	Internal Drainage Board	SME	Small and Medium Enterprises
BMIF	British Marine Industries Federation	IPC	Integrated Pollution Control	SMP	Shoreline Management Plan
BOD	Biochemical Oxygen Demand	IWA	Inland Waterways Association	SPA	Special Protection Area
BPEO	Best Practical Environmental Option	LA	Local Authority	SSSI	Site of Special Scientific Interest
CAP	Common Agricultural Policy	LA21	Local Agenda 21	STW	Sewage Treatment Works
CLA	Country Landowners Association	LEAP	Local Environment Agency Plan	SWT	Suffolk Wildlife Trust
CWS	County Wildlife Site	LPAs	Local Planning Authorities	UK	United Kingdom
DC	District Council	MAFF	Ministry of Agriculture, Fisheries and Food	WDC	Waverley District Council
DETR	Department of the Environment, Transport and the Regions	MoD	Ministry of Defence	WLMP	Water Level Management Plan
DO	Dissolved Oxygen	NFU	National Farmers Union	UNITS	
DoE	Department of the Environment	NNR	National Nature Reserve	km	kilometres
DTI	Department of Trade and Industry	NRA	National Rivers Authority	km²	square kilometres
EC	European Commission / Union / Community	NT	National Trust	mm	millimetre
EN	English Nature	p.a.	per annum	<	less than
		PPG	Planning Policy Guidance	>	greater than
		R & D	Research & Development	%	percentage
		RE	River Ecosystem	k	thousand
		RNC	River Needs Content		

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