local environment agency plan

NORTH ESSEX

ACTION PLAN

NOVEMBER 1998

ENVIRONMENT AGENCY

ADMINISTRATIVE DETAILS

Local Authorities:	Suffolk County Council Essex County Council Cambridgeshire County Council Colchester Borough Council Babergh District Council Braintree District Council St. Edmundsbury Borough Council Basildon District Council Chelmsford Borough Council Brentwood District Council Epping Forest District Council Uttlesford District Council South Cambridgeshire District Council East Cambridgeshire District Council Maldon District Council Tendring District Council
Environment Agency:	Anglian Region, Eastern Area
Flood Defence Committees:	Norfolk and Suffolk Local Flood Defence Committee Essex Local Flood Defence Committee
Water Utilities:	Anglian Water Services (AWS); Essex & Suffolk Water and Tendring Hundred Water
Sewage Treatment Works:	AWS: 94 (>250 people) Private: 6 (>10m3/day)
Industrial Discharges:	Total: 33, plus nine Water Treatment Work's discharges.

WATER RESOURCES

Generally, the water resources in the Plan area are committed with no availability for both groundwater or summer surface water. However, there is limited potential for developing winter abstraction for off-stream storage. Of the four major rivers in the Plan area, three are supported by the Ely Ouse to Essex Water Transfer Scheme which provides the essential link to maintain flows in the Stour, Pant and Blackwater for subsequent public water supply abstraction.

The drought event from 1995 to 1998 has resulted in low groundwater levels and poor flows in rivers. The low flow rates in the rivers during 1997 resulted in most rivers within the Plan area having formal restrictions of spray irrigation abstraction. However, the drought event has highlighted potential problems of low flows in the Rivers Colne, Brett and Pant.

ENVIRONMENTAL PLANNING

Integrated Pollution Control Authorisations	8
Radioactive Substances Authorisations	9
Number of licensed waste management facilities:	
Landfill Sites	168
Scrap Yards	22
Waste Transfer Stations	14
Waste Treatment	2 (Composting Plants)

ENVIRONMENTAL PROTECTION

Length (km) of River in General Quality Assessment classifications, 1995.

Chemical		Biological	
Class A	37.5	Class a	111.9
Class B	217.8	Class b	326.4
Class C	191.7	Class c	145.6
Class D	109.9	Class d	26.5
Class E	66.5	Class e	3.5
Unclassified	3.7	Unclassified	13.2

Length (km) of Estuary in Coastal and Estuarine Working Party (CEWP) Grades

Class A	74.6	Class C	5.6
Class B	7.6	Class D	0

FLOOD DEFENCE

Length of Designated Main River:

Fluvial	573 km	Tidal	119 km

Length of Environment Agency Maintained Sea Defences: 140 km

CONSERVATION

Numbers of:	
Sites of Special Scientific Interest	76
National Nature Reserves	4
Ramsar Sites	6
Special Protection Areas	6
Candidate Special Areas of Conservation	3
County Wildlife Sites (Total)	189
Scheduled Ancient Monuments	113

LENGTH OF RIVER IN EACH FISHERIES CLASS

	Coarse	Trout	Total
Class A	86.0	48.1	134.1
Class B	171.5	11.3	182.8
Class C	32.0	4.6	36.6
Class D	10.0	10.0	20.0
Total	299.5	74.0	373.5

NAVIGATION

The River Stour is one of the earliest known navigations, created by the Act of 1705. It is subject to the Environment Agency's navigation byelaws and is designated as a recreational waterway between Brundon Mill and Cattawade Barrage. In addition to the Environment Agency, who are the navigation authority, the River Stour Trust and the British Canoe Union (Eastern Region) are particularly active in promoting water recreation opportunities in the river.

The Chelmer and Blackwater Navigation is owned and controlled by the Chelmer and Blackwater Navigation Company, an independent company formed by Act of Parliament in 1793. It supports a wide range of boating activities with over 100 craft based permanently on the Navigation. For more details please refer to Page 9 ('Navigation').

KEY DETAILS

GENERAL

Land Area	3,600 km²
Length of Coastline	156 km

MAIN TOWNS AND APPROX. POPULATIONS (mid 1995)

Total Population	**877,500**		
Haverhill	20,260	Sudbury	11,540
Hadleigh	6,820	Colchester	154,400
Braintree	115,600	Chelmsford	151,700
Maldon	53,300	Brentwood	68,300

THE NORTH ESSEX PLAN AREA

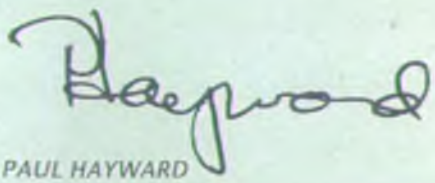
- Plan Boundary
- Main River
- Coastline
- Urban area
- Road
- Railway

SCALE
5 km

FOREWORD

This Action Plan provides a blueprint for the future of this important Plan area within the Counties of Essex, Suffolk and Cambridgeshire. 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 endeavour to implement it.



PAUL HAYWARD
Acting Area Manager - Eastern Area (Anglian Region)
Environment Agency

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 Essex Area Environment Group (AEG) who have overseen the production of this LEAP. There are 16 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:

Mr J JENKINSON MVO (Chairman)	Ports Industry
Mr P BRADFORD	Essex & Suffolk Water
Mr J CHRISTY	Shell UK
Mr C DURDIN	Royal Society for the Protection of Birds
Mr DJ FISHER	Essex Local Flood Defence Committee
Mr K GREEN, MBE	Kent and Essex Sea Fisheries Committee
Mr P HOLLOWAY	Essex Angling Consultative Association
Mr BS HURLEY	Environmental Services Association
Cllr R LEE	Thurrock Borough Council
Dr P LORNIE	Magnox Electric
Lt Col DL MACKAY	Council for the Protection of Rural England
Mr AJ McDOUGAL	Tilbury Power Station
Dr CF MASON	Regional Fisheries Advisory Committee
Ms C REID	English Nature
Mr R SMITH	Anglian Water Services
Cllr P WEXHAM	Southend-on-Sea Borough Council

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 to promote sustainable development.

Over the next ten years our prime objectives for the North Essex Plan area are to:

- Seek opportunities to improve the conservation value and character of the area, particularly with respect to protecting, enhancing and, where appropriate, restoring wetland and coastal habitats and associated flora and fauna;
- develop the access and recreation value of watercourses and protect the varied cultural heritage that exists within the area as a whole;
- develop and implement a management strategy for the River Stour navigation;
- provide effective sustainable flood defence management and, where necessary, raise standards of protection, to maintain the integrity of the catchment's freshwater rivers and the coastal fringe;
- 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 arrive at a long-term solution which addresses the problem of stagnated river flows, particularly in the Rivers Brett, Colne and Chelmer;
- protect areas of groundwater that are vulnerable to pollution;
- liaise with local authorities and water companies, particularly with respect to proposals for new development;
- provide effective regulation of industry, having regard to its needs while ensuring appropriate protection of the environment, for instance, from pollution incidents attributable to industrial estates;
- develop and act on the National Waste Strategy and seek partnerships 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, 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, for instance, on the Rivers Stour and Blackwater;
- interact with, listen and respond to the community and make a positive contribution towards sustainable development; and,
- educate and raise awareness of the local environment and environmental issues.

The Environment Agency will actively seek to reconcile the conflicting demands on the North Essex 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.

CONTENTS

1.0 INTRODUCTION

The North Essex 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 North Essex 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 North Essex LEAP Consultation Report which was produced in February 1998. 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 is one of the most powerful environmental regulators in the World. It provides a more comprehensive approach to the protection and management of the environment by combining the regulation of land, air and water. The Environment Agency exists to provide high quality environmental protection and improvement. This is achieved by an emphasis on prevention, education and vigorous enforcement wherever necessary. Our principal aim, as set out in the Environment Act 1995, is to protect and enhance the environment taken as a whole, in order to play our part in attaining the objective of sustainable development.

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; and,
- 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.

1.2 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 Environment Agency and partner organisations can take these issues forward.

The production of LEAPs involves several stages as shown in Figure 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; and,**
- **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.

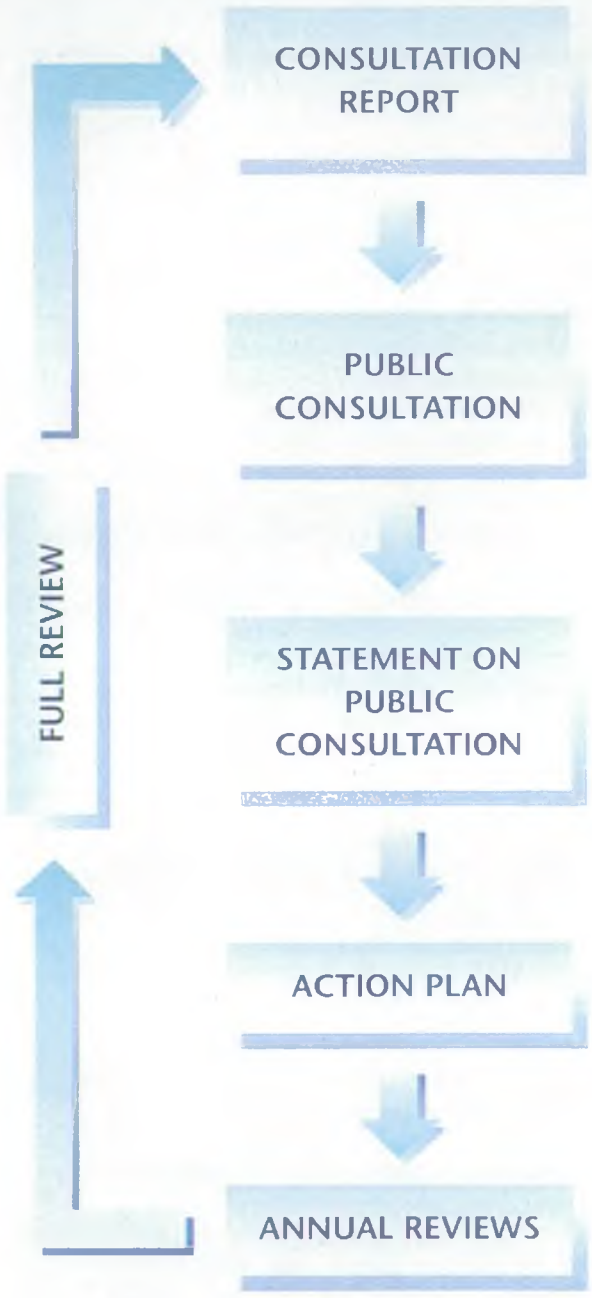


Figure 1 LEAP process

2.0 THE NORTH ESSEX PLAN AREA

2.1 BRIEF DESCRIPTION OF THE LEAP AREA

The North Essex Plan area has an undulating topography with the plateau being dissected by small, steep-sided valleys. The area is characterised by small to medium-scale fields and numerous small farm copses and hedgerows with trees that create a natural appearance. However, in places, a large-scale modern arable field pattern overlies earlier field patterns, giving an open feel which is emphasised by the loss of large elm trees through disease. The area has exceptionally attractive medieval towns and large villages with magnificent churches, picturesque timber-framed and colour-washed houses, occasional moated farmhouses, ponds and greens. These settlements have long-established market town functions that serve the surrounding area. Many of these are linked by narrow, winding and sunken lanes, often lined by hedges and grassy banks. In the south east part of the Plan area, parkland is more common, associated with a few large estates and manor houses.

The landscape is predominantly rural with small settlements and several large towns including Braintree, Colchester, Haverhill and Sudbury. The Plan area covers in part the County Councils of Essex, Suffolk and Cambridgeshire and in all or part the Borough and District Councils of Colchester, Babergh, Braintree, St. Edmundsbury, Basildon, Chelmsford, Maldon, Brentwood, Epping Forest, Uttlesford, East Cambridgeshire, South Cambridgeshire and Tendring.

2.2 SUMMARY OF NATURAL RESOURCES, USES, ACTIVITIES AND PRESSURES

WILDLIFE, LANDSCAPE AND HERITAGE

The area is rich in landscape and wildlife heritage and most of the coast is of international importance for conservation. Within north Essex some rich and varied wildlife has survived, despite the changes that have occurred as a result of agriculture, industry and increased urbanisation since the 1940's. For example, 99% of Essex's flower-rich meadows have been lost since 1945 and even on the coast very significant losses of grazing marsh and saltmarsh habitats have occurred over the same period. Important semi-natural habitats that remain include ancient woodland, unimproved grassland, mudflats and saltings. The diversity of habitats, the associated plant communities and the breeding and wintering bird populations are of international importance. Many of the river valleys and much of the coast is designated as part of the Suffolk River Valleys or Essex Coast Environmentally Sensitive Areas (ESAs) which encourage landowners to manage their land by traditional methods, which can benefit wildlife and landscape conservation.

The Environment Agency are involved in producing the Essex Biodiversity Action Plan which will identify, with other key organisations, habitats and species (e.g. otters, water vole, crayfish, reedbeds, brackish lagoons) upon which we will concentrate our conservation efforts. This Plan is at its

Finchingfield, Essex

2.0 THE NORTH ESSEX PLAN AREA

final consultation stage and once finalised we will begin to implement methods to reach set targets. The Plan is due to be launched at the beginning of 1999.

FISHERIES

Important freshwater fisheries occur in rivers, streams, lakes, reservoirs and ponds throughout the area. These are dominated by coarse fish species, although self-sustaining and introduction-dependent trout stocks can be found in a number of locations. Many of the fisheries are regularly exploited by anglers for recreational purposes. The popularity and diversity of interest of angling as a sport, together with a relatively high resident population and ease of access from London, combine to ensure that there is always a great demand for both angling venues and opportunities.

There are extensive and important commercial eel fisheries in tidal waters all around the coastline. Some commercial eel fishing occurs intermittently on inland waters, although catches are small compared with the tidal fishery.

RECREATION AND AMENITY

The Essex and Suffolk coasts are extensively used for a wide variety of sport and recreational activities. Flood defence, wildlife, conservation, navigation byelaws and the general demand for watersport facilities has highlighted increasing pressures on available water space. It is therefore essential that the Environment Agency, harbour authorities, local authorities and statutory and voluntary bodies agree on a planned approach for the limited resource after consultation with the users, as well as commercial and conservation interests.

The estuaries and the river valleys of the Plan area provide excellent opportunities for both formal and informal recreation. Many of these draw upon the natural beauty of the area and are broadly compatible with the various

landscape and wildlife designations within the area. The English Sports Council - East, has produced a very comprehensive regional strategy report for Water Recreation which covers the waters of this area (Essex and part of Suffolk - Zone Three). The area covered in this Report contains several recreationally important coastal estuaries (Blackwater, Colne and Stour), inland rivers (Chelmer, Colne and Stour) and enclosed waters (Abberton, Ardleigh and Hanningfield).

The Essex and Suffolk countryside provides ample opportunity for walking, cycling and riding based on the existing rights of way. The abundance of footpaths within the area as a whole is such that Essex County Council has produced a 'Directory of Walks and Rides'. Wildlife observation is a popular activity and the estuaries of the Stour, Colne and Blackwater provide opportunities for both sail and motor-powered craft. The River Chelmer, both through and below Chelmsford and is popular with canoeists and the upper reaches of the Chelmer, Can and Wid also provide good canoeing (n.b. the rivers are privately owned and not statutory navigations). The Stour Valley and Dedham Vale are popular tourist attractions, most notably because this is 'Constable Country' and Flatford Mill is owned by John Constable's family.

COASTAL AND FLUVIAL DEFENCES

The coastline is composed of soft materials and is mostly low-lying although some cliffs are present, notably at Walton-on-the-Naze. Some coastal towns are built on high ground, benefitting from coast protection works funded by district councils. Groynes and beach recharge schemes have been employed on open sea reaches in an effort to reduce damaging waves both on high ground frontages and low lying land zones. These are maintained by the Environment Agency.

The area has four major river systems; the Stour, Colne, Chelmer and Blackwater. All have floodplains under agricultural use and numerous water mills, a familiar site in this part of the Country, with over 80 such mills present.

Manningtree tidal defences, River Stour

2.0 THE NORTH ESSEX PLAN AREA

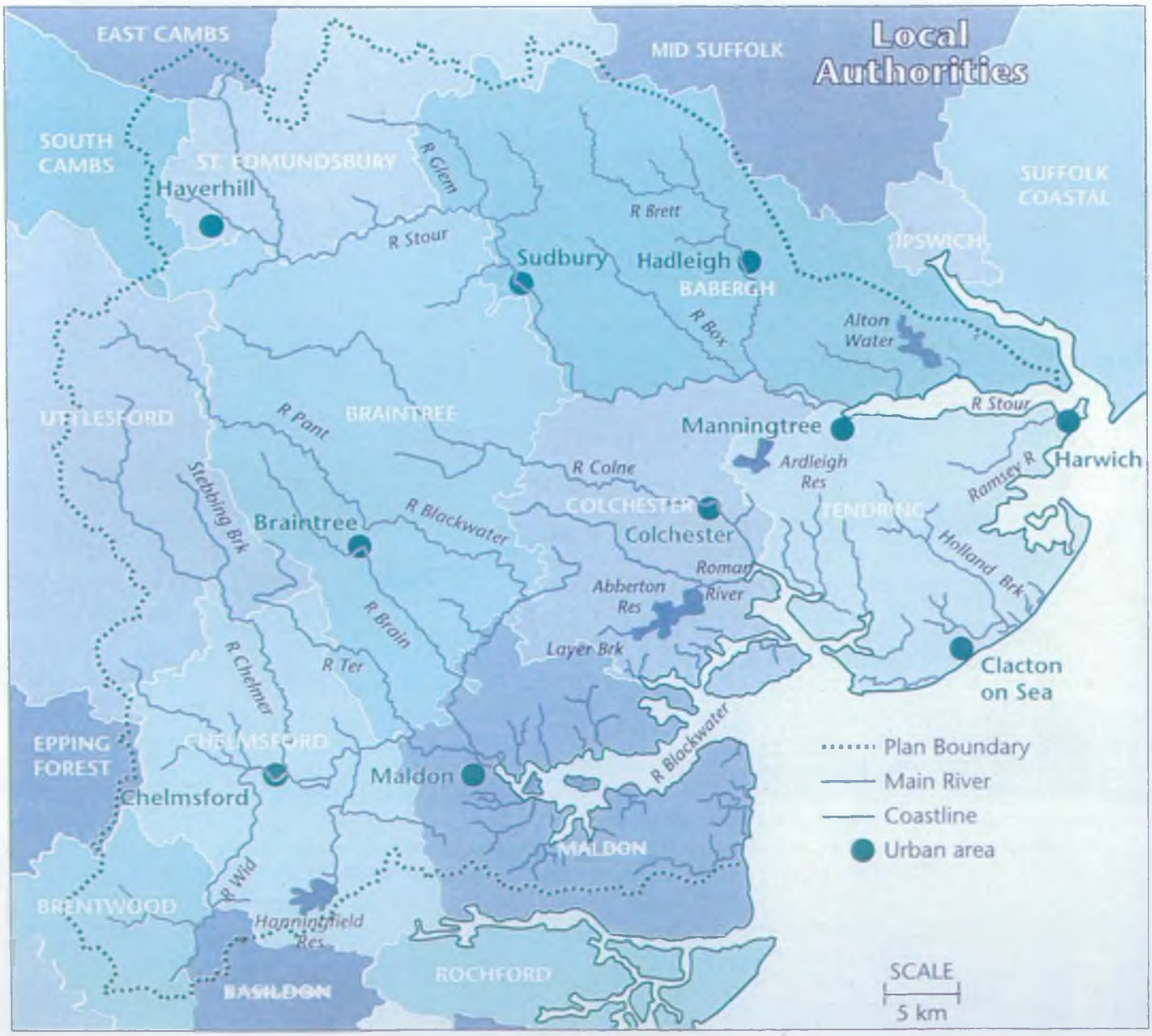
THE BUILT ENVIRONMENT AND DEVELOPMENT PLANS

Development within our cities, towns and countryside, and in particular the urbanisation of greenfield sites (land which has not yet been developed) has a major impact upon our environment. Development may include new building works, changes in land use and the development of communication systems and other such infrastructure. The predicted change in land use is identified through Structure Plans and Local Plans. The Suffolk Structure Plan Review: Consultation Draft (April 1998) and the Essex County Council, Draft Deposit Plan (February 1998) set out key strategic policies as a framework to feed into local planning by District/Borough Councils, as well as providing guidance to statutory and other organisations for their own plans and programmes. There are thirteen local plans which cover the North Essex area. All development plans are increasingly recognising the importance of sustainable development and are acknowledging that land is a finite resource of fundamental importance, both to the local environment and the economy. Many policies exist to protect the environment as a result, for example, Suffolk County Council's 'Suffolk Countryside Strategy' includes core Action Points on encouraging the better management of water resources, reducing levels of pesticides and nitrates in surface waters and encouraging organisations to work together to reduce demand for, and the waste of, water.

FARMING, INDUSTRY AND POWER GENERATION

The North Essex Plan area has a long history of supporting a wide variety of agricultural activities and continues to do so over most of the area. Arable cultivation of cereals and root crops are the principal farming activities. Animal husbandry, soft fruit growing, market gardens and intensive glasshouse operations are also supported to varying degrees. It must also be noted, however, that a very significant proportion of north Essex's countryside consists of impoverished arable farmland with very limited wildlife value.

Although agriculture is the major industry, other activities include food processing, light industrial and manufacturing



2.0 THE NORTH ESSEX PLAN AREA

activities and chemical and pharmaceutical production. The nuclear power station located on the Blackwater estuary (Bradwell Nuclear Power Station) is perhaps the most high-profile installation in the area. The ports at Parkeston and Harwich support both passenger services to Europe and the export/import of freight from around the World. A number of smaller ports are limited to handling freight traffic. Industry can impact upon the environment in many different ways. We aim to work with industry in a regulatory and advisory capacity to ensure that the environment is protected.

WASTE MANAGEMENT

Activities within the area create a mixture of household, commercial, and industrial waste. Landfill is the disposal method for the vast majority of waste that is produced. Active and closed landfill sites are located throughout the Plan area. Their location is influenced by the geology of the land, and many former mineral workings are utilised as landfill facilities.

There are a number of closed sites which have the potential to cause problems as a result of them having operated before effective regulation was introduced. They are closely monitored on a regular basis.

Commercial, industrial and agricultural businesses will be encouraged to introduce improvements to resource management in order to minimise waste and contribute towards sustainable development.

MINERAL EXTRACTION

The county's of Essex and Suffolk hold significant sources of sand and gravel which are extracted for aggregate. These mineral workings sites can affect both groundwater quantity and quality. Generally the minerals in this Plan area are located in the river valleys and their removal can affect the balance of the river. Suffolk County Council and Essex County Council, as Mineral Planning Authorities for this Plan area, have responsibility for all mineral planning matters. The Environment Agency are consulted, as a statutory

consultee on the Mineral Plans and also on individual planning applications (which should include restoration proposals).

An important source of sands and gravels within the Plan area is from marine deposits. The marine aggregate winning area is located some eight to ten miles offshore, parallel to the coast. Although the responsibility for licensing marine aggregate abstraction lies with the Crown Estates Commissioners, the Environment Agency has an interest to ensure that water quality is not adversely affected, sea defences are not put at risk and marine life is not significantly disturbed.

HYDROLOGY AND HYDROGEOLOGY

Generally water resources are committed with no availability for both groundwater or summer surface water. However, there is limited potential for developing winter abstraction for off-stream storage. Of the four major rivers, two are currently supported by the Ely Ouse to Essex Water Transfer Scheme, which provides the essential link to maintain flows in the Stour and Pant/Blackwater for subsequent public water supply abstraction. The Colne is not supported because the yield of the Ely Ouse Scheme is fully allocated to existing abstractors in the other supported rivers. The Stour Augmentation Groundwater Scheme (SAGS) helps to support the Stour and some of its tributaries (including the Glem and Brett) when all the water needed as part of the Ely Ouse Scheme is not available at the Denver Complex (Norfolk). SAGS has also been used to alleviate low flow problems in the Glem and Brett during the 1996/98 drought.

The Plan area has an average annual rainfall of 570mm of which approximately 430mm is lost to evaporation. The continued drought event from 1995 to 1998 has resulted in low groundwater levels and poor flows in rivers. The low flow rates in the rivers during 1997 resulted in most rivers within the Plan area having formal restrictions of spray irrigation abstraction. However, the drought event has identified that rivers can be susceptible to the effects of low groundwater levels, particularly recently in the Colne, Brett and Pant.

The hydrogeology in the Plan area is influenced by the relatively impermeable Eocene deposits of London Clay and the Lower London Tertiaries (including the Woolwich and Reading Beds and the Thanet Beds). The effective recharge to the various aquifer systems and the interflow to the rivers is influenced by the surface geology. To the west of the London Clay the aquifer system is principally Chalk overlain by Sands and Gravels, Boulder Clay and Crag, while to the east of this limit the Chalk becomes confined by the overlying sequence of the unconfined Crag and Superficial deposits and London Clay and Lower London Tertiaries. Superficial deposits is a generic term which, in this Plan area, shall refer to all geological sequences deposited after the Pleistocene epoch (including Sand and Gravel, Boulder Clay and Alluvial deposits) and are in general hydraulic continuity.

The Chalk, Crag and Superficial aquifers are important to the overall Plan area as they provide baseflow to rivers as well as supporting significant abstractions for potable supply, industry and agriculture. Within all the aquifers water is also used for local domestic supplies as well as some small-scale agricultural activities. Chalk water varies from around 20m Above Ordnance Datum in the west to near sea level in the east. The movement of water within the Chalk is predominantly in a south-easterly direction and generally in line with its dip. However, the Crag and Superficial aquifers are dependant on the variable surface topography of the London Clay deposits. The variability can give rise to discrete pockets of aquifer as well as to dramatically changing direction of flow.

Although the Crag and Superficial deposits are considered to have large storage capacity, the dry weather conditions of 1996/98 have depleted the overall groundwater levels to such an extent that the Environment Agency is increasingly having to investigate many complaints of drought-related well failures. Water quality in both aquifers is predominantly good, although the Chalk water in the east is connate and characterised by high chloride levels while the Crag and Superficial deposits can have high levels of nitrate and iron.

WATER QUALITY

Water quality in the Plan area has improved since 1990. The General Quality Assessment surveys of 1990 and 1996 have shown an overall improvement of 26% within the area. Typically, water quality problems are related to low flows and nutrient enrichment leading to low dissolved oxygen levels. Nutrient enrichment arises from diffuse nitrogen inputs and phosphorus from point sources. Improvements will be linked to pollution prevention initiatives such as Nitrate Vulnerable Zone (NVZ) enforcement and increased investment in effluent treatment.

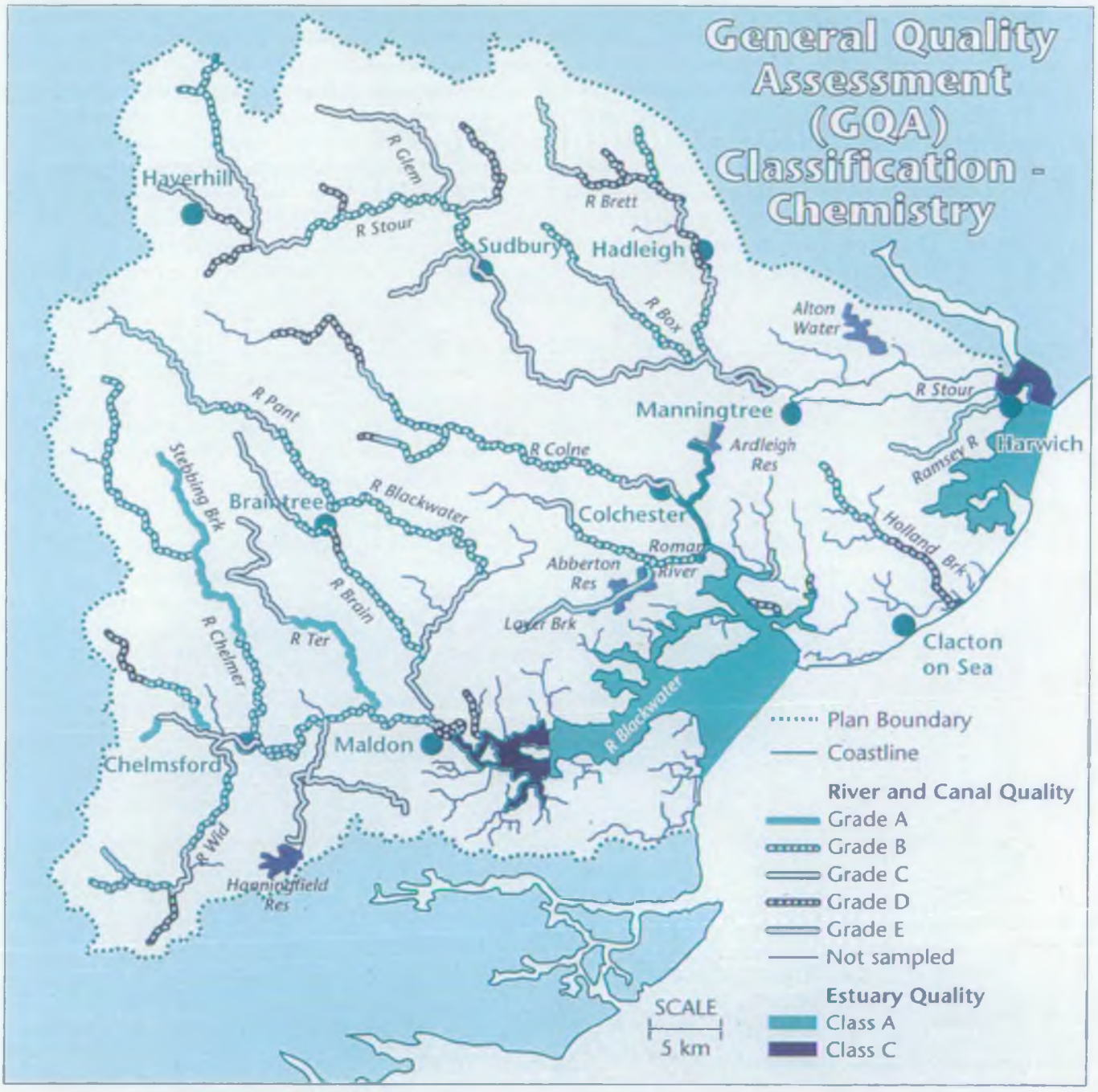
The Agency will continue to work in partnership with other organisations to develop innovative solutions to diffuse pollution from urban areas, such as source control and Best Management Practice for surface water drainage.

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 Department of the Environment, Transport and the Regions (DETR) 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 where air quality standards are not being met and drawing up Action Plans to improve the situation. The Environment Agency will work with local authorities to clarify responsibilities for implementing the

2.0 THE NORTH ESSEX PLAN AREA



National Air Quality Strategy and to provide relevant information where appropriate. The Environment 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 eight IPC authorisations.

NAVIGATION

Most river sections in the North Essex Plan area are not suitable for sailing, due to their limited widths. Navigation is permissible where statutory navigation rights exist, otherwise the riparian owners' consent is required. Only parts of the River Stour and the Chelmer and Blackwater Navigation have established statutory rights of navigation. There are differing opinions on whether or not public rights of navigation exist on the River Chelmer, above Chelmsford. Organisations promoting canoe events on statutory navigations should give careful consideration to safety when navigating near to river control structures and early consultation should be made with the Environment Agency and riparian owners if this is to be the case.

The River Stour is one of the earliest known navigations, created by the Act of 1705 and was used for commercial traffic for over two hundred years until 1935, when it fell into disuse. As one of the oldest navigable waterways in the Country, the River Stour is an important waterway. Many of Constable's paintings depict the navigation during its heyday. It therefore has some interesting industrial archeology. Although a barrage (above Cattawade) now prevents the passage of larger craft, a boat roller path has

been installed to allow small boats to cross over. The River Stour is designated as a recreational waterway between Brundon Mill and Cattawade Barrage. The river is subject to the Environment Agency's navigation byelaws. In addition to the Environment Agency, who are the navigation authority, the River Stour Trust and British Canoe Union (Eastern Region) are particularly active in promoting water recreation opportunities on the river, and thereby increasing river usage. This has been helped by negotiation of a block licensing arrangement with the Environment Agency to cover all British Canoe Union members.

Parts of the River Chelmer and Blackwater were deepened and straightened over two hundred years ago to permit a navigable waterway from Springfield Basin at Chelmsford to Heybridge Basin on the River Blackwater. The navigation, which was still used by commercial barge traffic in 1972, is owned and controlled by the Chelmer and Blackwater Navigation Company, an independent company formed by Act of Parliament in 1793. The navigation is wider than all other Essex rivers (except the Stour), but even so is still relatively narrow. However, it supports a wide range of boating activities with over 100 craft based permanently on the navigation.

River Stour navigation: 1894

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 February 1998 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 June 1998.

3.2 RESULTS OF CONSULTATION

Responses were received from 39 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:

- **Lack of reference to the recreational use of the Plan area;**
- **lack of reference to the navigational use of the Plan area; and,**
- **more answers needed regarding the link between development and water supply.**

Issues raised by respondents that were not raised in the Consultation Report include organic farming techniques and the waste licensing service. 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. The Environment Agency would like to thank all of those who responded with such positive and constructive comments during the consultation period.

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. 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; and,
- 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; and,
- the issues and activities are not presented in any order of priority.

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

TABLE 1 MANAGING OUR WATER RESOURCES

It is considered that, within the North Essex Plan area, actual flows may at times be inadequate in some river stretches **(see Issue 1a)**. A combination of low bed slope and shallow profiles can encourage water within a river to stagnate and to develop weed growth with subsequent implications on the aquatic environment and its aesthetics. The drought events from 1995 to 1998 have highlighted problems associated with stagnated flows in several rivers in the Plan area, including reported fish kills and odour problems. The fish kills, odour problems and other related conditions are likely to be linked to the relatively high summer temperatures stripping out the dissolved oxygen within relatively shallow river levels, but this is only a symptom of the overall problem.

It is uncertain if stagnated flows are due to the drought events or as a direct result of human influences, including groundwater and surface water abstraction and land drainage as well as altered stream profiles. There is also the real possibility that stagnated river flows are a combination of both natural and human influences. Although the visual impact of stagnated flows is obvious, the actual cause of the stagnated river flows and the subsequent conditions may be numerous, complex and difficult to proportion **(see Issue 1d)**. The rivers considered to be of concern are the Rivers Brett, Colne, Pant and Chelmer. Although the Environment Agency will be the lead responsibility for any investigation we will be seeking partnership and co-operation from water companies, industry and the farming community as well as conservation bodies to identify causes and seek long-term solutions. Within the Environment Agency we will seek to arrive at a long term solution which addresses multi-functional concerns.

This will also form part of the River Flow Objectives (RFOs). The Environment Agency will be progressing studies to identify methodologies for evaluating RFOs **(see Issue 1a)** which will define flow regimes (not just the minimum) to meet a variety of environmental objectives. Following this, there is a requirement to review the methodology used for assessing water resource availability in the light of improved knowledge of environmental demands. A river can have a

natural cycle of low flows, especially in the upper reaches. Certain habitats can depend on this seasonality while further downstream, different habitats may be established around a progressive flow regime. Therefore it is expected that the RFO methodology should be able to define RFO's at discrete stretches that take into account the characteristics of the river and the habitat baseline established. It must, however, be recognised that rivers do respond naturally to such events as droughts and floods and that these events must also be taken into account in establishing the flow regime. Progress on determining RFO's has been slow because of data requirements, complexity and the multi-disciplinary technical specialists required to evaluate them. The Environment Agency are now reviewing options to speed up progress.

At a local level, Cattawade Marshes (located where the freshwater River Stour enters the estuary, east of the tidal barrage) are encountering severe water resource problems **(see Issue 1b)**. Cattawade Marshes were designated as a Site of Special Scientific Interest (SSSI) in January 1988 due, amongst its botanical interest, to its rich habitat value for breeding waders and wildfowl. At the time of notification redshank, shelduck, shoveler, teal and water rail all nested in the wetland habitat. The marshes have suffered from reduced river levels in recent years which have been exacerbated by the drought. Recent surveys carried out by the Royal Society for the Protection of Birds (RSPB) show breeding bird counts are greatly reduced. If present decline continues the conservation value of the site will reduce still further and this could ultimately threaten the sites SSSI status. A Water Level Management Plan (WLMP) is under production for the site (see Activity 2) and an Interim Management Statement already exists.

The long-term sustainability of water resources, across the Plan area, has many pressures imposed upon it due to urban, industrial and agricultural growth. To better manage the availability and pressures on the water resources, the Environment Agency needs to develop a better understanding of the extent and interaction of flows between and within aquifers **(see Issue 1c)**. In particular will be the need to understand the confined/unconfined Chalk and Superficial deposits, as well as the influence the Eocene deposits have in controlling groundwater flow. River flow is critical in summer months and it is the groundwater contributory baseflow which maintains this and determines the health of a river. Current practice is to base the environmental allowances on river flow assuming that only one type of aquifer is contributing to the overall flow. As such, the water balances which effects two aquifer systems could be inappropriate, especially where there may be a connection between the two aquifers.

From a detailed understanding we would be in a better position to confirm our knowledge of the overall resource availability, undertake strategic management for licensing and realise the effect of development growth on sustainability. For example, potential problems have become apparent within the River Brett and the Upper Pant with regard to the link between public water supplies and low flows as well as an apparent loss of flow in the lower reaches of the River Stour during the summer of 1997.

There is a real need in this Plan area to review the operation, efficiency and environmental impact of SAGS **as detailed in Issue 1e**. Despite pre-licensing investigations and post-operational experience the Environment Agency would prefer to have a better understanding of the flow

Cattawade Marshes SSSI

TABLE 1 MANAGING OUR WATER RESOURCES (continued)

mechanisms before and after pumping, the impact of abstraction on the environment and other users, as well as the effectiveness on operational net gain at meeting downstream flow targets. The operation of the SAGS has also been constrained by alleged impacts of abstraction and the licence conditions which enforces a fifteen year aggregate total that could be exceeded within a five year drought period.

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. In addition, greater emphasis is being placed on groundwater level data to be used in strategic water management, especially during continued drought events. As part of its routine monitoring programme, the Environment Agency has many groundwater level monitoring boreholes developed over many years of unplanned development. The boreholes are measured monthly and the data are placed onto an archive database. It is from this database that various trends and resource availability can be assessed.

However, the effectiveness of the groundwater level monitoring depends on the monitoring network. At present it is considered that the monitoring network is inadequate **(see Issue 1f)** and that the effectiveness of interpretation is impaired. This situation is accepted to be the case for all the aquifer systems in the Plan area. Anglian Region has initiated a programme of formally reviewing the monitoring networks for all aquifers, including this Plan area. At the same time, a Research and Development (R&D) project is to be advanced, which will determine the ideal monitoring network based on many contingent variables.

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
1a Actual flows are perceived to be inadequate to meet river needs.	Carry out ecological and in-river needs studies to develop and refine RFOs.	Environment Agency	Unknown (could exceed £0.5 million)	■	■	■	■	■	■	Implementation of the methodology is subject to National and Regional studies and priorities for funding.	Alan Hull
1b Concern over the decline in freshwater levels to Cattawade Marshes SSSI.	Complete Cattawade Marshes Water Level Management Plan (WLMP) in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) timetable.	Environment Agency	Staff Time (Revenue)	■						WLMP in progress. Interim Management Statement drawn up until Final Plan in place.	Vicky Eade
	Negotiate with the Water Company to implement the most sympathetic abstraction regime and implement the objectives of the WLMP and AMP3 review.	Environment Agency, Essex and Suffolk Water, English Nature, Landowners, MAFF, FRCA	Staff Time (Revenue)	■	■	■	■	■		Ongoing discussions between all involved parties.	Merle Leeds/ Vicky Eade

4.0 ACTIVITY TABLES

TABLE 1 MANAGING OUR WATER RESOURCES (continued)

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
1c There is a need to develop a better understanding of the extent and interaction of the aquifer system.	Determine the feasibility of modelling and investigation.	Environment Agency	-		■					A Regional Strategy for groundwater investigations and modelling has been accepted by our Regional Project Board.	David Seccombe
	Investigate the flow of the Chalk aquifer.	Environment Agency	-		■	■	■				
	Investigate the flow of the Superficial aquifer system.	Environment Agency	All will cost £150k (Revenue)		■	■	■				
	Link all aquifers into a conceptualised understanding.	Environment Agency	-				■	■	■		
	From first three activities, revise water resource budgets and licensing policy.	Environment Agency	-				■	■	■		
1d Problems of stagnated river flows, eg. in the Rivers Brett, Colne, Pant and Chelmer.	Review monitoring.	Environment Agency, Water Company	Staff Time (Revenue)	■	■					Priority rivers have been put forward under AMP3 for further investigations. We await the outcome of the Water Company's decisions.	Alan Hull
	Investigate the problems of stagnated river flows.	Environment Agency, Water Company	Staff Time (Revenue)	■	■	■	■	■			Alan Hull
1e Need to review the operation, efficiency and environmental impact of the SAGS.	Review existing data and collate a common database.	Environment Agency	All will cost £60k total	■	■					The Environment Agency are currently in the process of seeking partnership with Essex and Suffolk Water to pursue this issue through joint funding initiatives.	David Seccombe
	Establish hydrogeological framework and estimate the impact, effectiveness and efficiency of operation.	Environment Agency		■	■						David Seccombe
	Undertake strategic management scenarios and review implications of results.	Environment Agency		■	■	■	■				David Seccombe
	Establish control rules for operation.	Environment Agency		■	■	■	■				David Seccombe
1f Current groundwater level monitoring is inadequate.	Review and assess monitoring network based on a minimum criteria.	Environment Agency	20k		■	■				There is a trial of the review procedures in the Anglian Region, based on the Waveney, Little Ouse and North Lincolnshire Limestone catchments. This trial will then determine future progress of this Issue.	David Seccombe

4.0 ACTIVITY TABLES

TABLE 2 ENHANCING BIODIVERSITY

The 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 knowledge of the status of headwaters in the Plan area is very limited (see Issue 2a), as is our understanding of the impact of agricultural practices, water quality and resource issues.

Until recently, river management across the Region was driven by agricultural policies to improve drainage within the floodplain and hence maximise the production of cereals. These activities have resulted in the loss of many in-channel and floodplain habitats. It is typically the case for the North Essex Plan area that most rivers are suffering from a lack of habitat diversity (see Issue 2b). The introduction of a number of agri-environment schemes such as the Essex Coast Environmentally Sensitive Area (ESA) Scheme or the Suffolk River Valleys ESA Scheme, provide the potential to restore the ecology of some sections of the rivers through a variety of enhancement techniques.

On a local level, a study has been carried out on the River Blackwater. Its aim was to identify restoration proposals that would result in significant ecological improvements to the river channel. Many of its proposals were aimed at physical enhancements that would have a neutral or even beneficial impact on the standards of flood defence in the catchments. At Old West Mill, between Coggeshall and Braintree, we have now opened up an old mill channel that fell into disrepair in the 1930's and had consequently silted up. It is now a fish refuge to shelter fish which are trying to find slower-running water when the Ely Ouse to Essex Water Transfer Scheme is running at high rates. Two more schemes have been proposed, again aimed at creating fish refuges.

To achieve Biodiversity Action Plan targets for riverine species (e.g. otters, water voles and crayfish) improvements will be required to a number of riverine habitats. These have been identified as Options below. At the time of this Plan going to print, the Essex Biodiversity Action Plan is at its final consultation stage and, once finalised, we will begin to implement methods to reach the set targets. The Plan is due to be launched at the beginning of 1999.

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
2a There is a need to better understand the requirements of headwaters in the Plan area.	Assess the level of data on headwaters and identify priorities for completing species level surveys of selected headwaters.	Environment Agency	Staff time (Revenue)	■						Fisheries surveys of headwaters have been completed at known sites. A rolling programme of surveys will begin to monitor key species and populations.	Robin Burrough
	Identify a strategy for the protection of headwaters.	Environment Agency	Staff time (Revenue)	■	■						Robin Burrough
2b Requirement to improve habitat diversity within rivers and their floodplains.	Identify and implement further river/floodplain restoration projects and habitat enhancements.	Environment Agency, Conservation Bodies	To be assessed	■	■	■	■	■		Restoration projects have been carried out on the River Blackwater and further schemes on the Colne and Stour are being investigated and are planned for the coming year.	Kate Potter/ John Claydon
	Identify specific enhancements to improve fish habitat and spawning sites.	Environment Agency, Conservation Bodies	To be assessed	■	■	■	■	■			Robin Burrough

4.0 ACTIVITY TABLES

TABLE 3 MANAGING OUR FRESHWATER FISHERIES

A number of river stretches in the North Essex Plan area fail to achieve their fisheries biomass target class **(see Issue 3a)**. Current failures occur on parts of the Rivers Stour, Glem, Colne and Blackwater, together with the whole of the Ramsey River, Asheldham Brook and Holbrook. These failures require investigation to determine the contribution to failure made by natural processes, to ensure that the target classes are appropriate and to identify any remedial measures which may be necessary.

It is frequently claimed by the angling community that operation of the Ely Ouse to Essex Water Transfer Scheme, particularly at high and/or very variable rates, has an adverse impact on angling catches in the receiving rivers **(see Issue 3b)**. This possibility has been brought into sharp focus by the drought conditions of recent years, which have seen the scheme operating on an unprecedented scale. The effect on angling success may be present irrespective of whether or not there is any impact on the scale and composition of the fish stocks themselves.

The designations of river reaches requiring protection in accordance with the *EC Freshwater Fish Directive (78/659/EEC)* have not been subject to critical review since 1986. It is known that the current designations do not include all river reaches regarded as important for their fish stocks **(see Issue 3c)**. Consequently, these stocks are not protected to the best available standards under EC law. This issue affects all of the catchments in the Plan area, but is also a national issue.

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
3a Investigate and, where possible, ameliorate failures in fisheries biomass targets.	Confirm that the targets are appropriate, investigate failures in fisheries targets, and identify remedial measures.	Environment Agency	Staff time (Revenue)	■	■	■	■	■		Any remedial measures will depend upon the results of the investigation.	Robin Burrough
	Where appropriate, implement remedial measures.	Environment Agency	To be assessed	■	■	■	■	■			Robin Burrough
3b Concern over an adverse impact on angling success in the receiving Rivers Stour and Pant/ Blackwater due to the operation of the Ely Ouse to Essex Water Transfer Scheme.	Evaluate angling catch data to determine if any adverse impact can be identified.	Environment Agency, Angling Clubs	Staff time (Revenue)	■						Awaiting outcome of evaluation to determine if further steps need to be taken.	Robin Burrough
	Investigate not operating transfers at high and/or variable rates.	Environment Agency, Essex and Suffolk Water	Staff time (Revenue)	■							Robin Burrough
3c 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.	Review existing designations and recommend revisions and additions as required.	Environment Agency	1k	■	■					Protection of fish stocks is also achieved through compliance with Water Quality RE targets.	Robin Burrough

4.0 ACTIVITY TABLES

TABLE 4 DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT

A number of river stretches have a history of poor water quality, either for dissolved oxygen or for dissolved oxygen combined with other parameters **(see Issue 4a).** The failure to achieve the assigned RE target may not always be directly attributed to natural factors and, hence, further investigation is required.

There are also river stretches where the principal reason for failure against RE targets is for dissolved oxygen and a review of the data has shown that dissolved oxygen levels have not deteriorated over the last 15 years (only sites which have no significant consented effluents upstream of the sample point have been included in this category). The lower levels of dissolved oxygen measured 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 increased nutrient levels resulting in increased vegetation and algal growth - eutrophication. The presence of high concentrations of algae cause large fluctuations in dissolved oxygen levels and elevated Biochemical Oxygen Demand results.

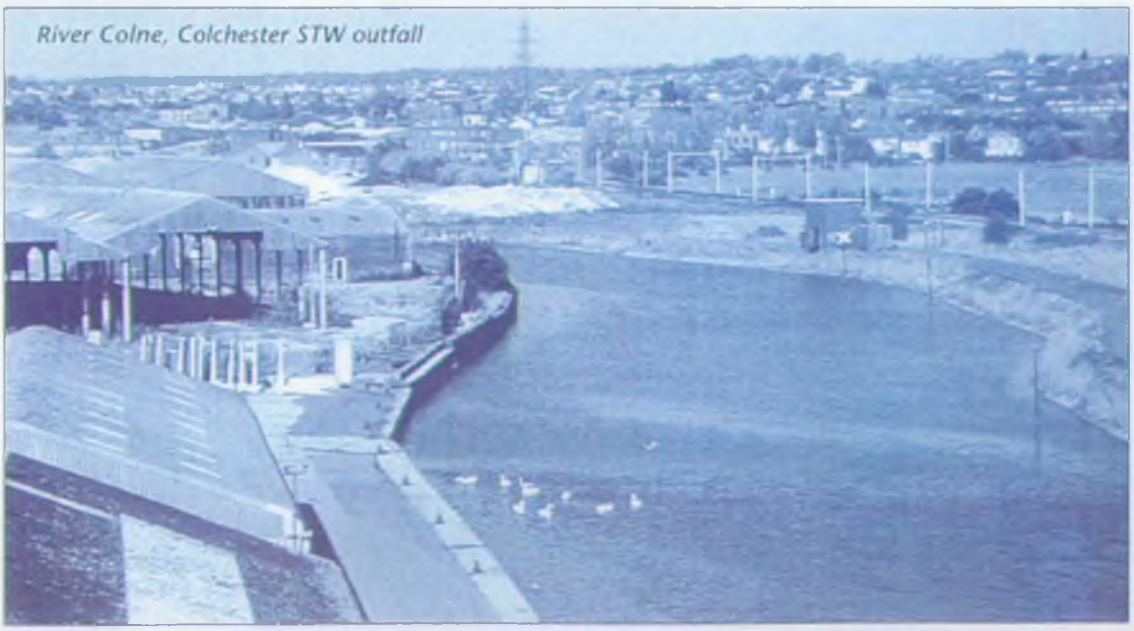
Hence, at a number of sites' dissolved oxygen levels achieve values substantially lower than the assigned target **(see Issue 4b).** The other measures of water quality readily achieve the RE target. In these rivers it is improbable that the targets will ever be achieved for the reasons given above. As these oxygen levels are historically those that were sustained in these low flow rivers, the ecology and fish community have adapted and we have no reason to believe from our biological monitoring that adverse impacts have taken place.

All four public water supply intakes, used for direct supply, have a long history of failing to meet the *EC Surface Water Abstraction Directive* for nitrogen **(see Issue 4c).** Evaluation of the monitoring data has concluded that agricultural sources are responsible for the majority of nitrate in the river. Sewage Treatment Works (STWs) and other non-agricultural sources (where these could be assessed) contribute less than 20% and in most cases less than 10% of the nitrate. In order to control the agricultural source, parts of the Rivers Blackwater, Brain and Chelmer have been designated as Nitrate Vulnerable Zones (NVZs). Regulations are in place which will require farmers to control the application of nitrogen to their fields. The Agency is responsible for enforcement of these regulations.

Under the *EC Urban Waste Water Treatment Directive* the River Blackwater and River Brain have been designated as Sensitive Areas (Nitrate) [SA(N)]. This will require nitrogen removal at all qualifying discharges (sewage treatment works serving populations greater than 10,000 people). This is not a simple or cheap procedure and at the request of the DETR, Anglian Water Services are undertaking operational investigations to assess appropriate treatment.

The River Stour is considerably eutrophic in its lower reaches **(see Issue 4f).** This is caused by the input of nutrients from discharges and farmland but is exacerbated by the Ely Ouse Scheme which elevates nutrients and introduces diatoms and algae. When these diatoms and algae bloom they cause large fluctuations in dissolved oxygen concentration and significantly alter the biological balance of the river. This has resulted in the river being designated as a Sensitive Area (Eutrophic) [SA(E)] and proposed as a SA(N) under the *EC Urban Waste Water Treatment Directive.* The Phosphorus concentration will have to be reduced at STWs serving a population greater than 10,000 people by the year 2004. Nitrate loads will have to be reduced at the same STWs if the proposed SA(N) is approved by the DETR.

The estuary fails its target class for ammonia along the stretch from Colchester to Colne Point and has the poorest water quality of all the estuaries in the Eastern Area **(see Issue 4g).** Anglian Water Services are currently modifying Colchester STW to improve the quality of the discharge. Anglian Water Services anticipate that this work will be



River Colne, Colchester STW outfall

4.0 ACTIVITY TABLES

FIGURE 2: OVER-PERFORMING STWS

STW	Receiving Watercourse	Index of over-performance		RE Target Class	Potential Class*
		BOD	Ammonia		
Great Leighs	River Ter	56	33	RE1	RE3
Rayne	River Brain	58	-	RE2	RE5
Bocking	River Blackwater	82	-	RE2	RE4
Boxford	River Box	65	77	RE2	RE4
Long Melford	River Stour	38	75	RE2	RE3
Halstead	River Colne	73	44	RE2	RE3
Langham	Black Brook	59	94	RE3	RE5
Nayland	River Stour	85	-	RE3	RE5
Braintree	River Brain	58	55	RE3	RE5
Haverhill	Stour Brook	37	41	RE3	RE5
Bildeston	Bildeston Brook	81	-	RE3	RE5
Birch	Birchwood Brook	69	50	RE4	RE5

* indicates the likely RE class should the STW quality deteriorate to a point where it just complies with its legal consent

\- indicates that STW is not over-performing for this parameter

completed during the second half of 1999, at a cost of £7.5 million. We are optimistic that before long the estuary quality will significantly improve.

Effluent quality is controlled by the current legal consent. Dischargers are required to ensure effluent quality is compliant. In some situations a sewage treatment works may be producing an effluent quality that is considerably better than the legal consent, termed 'over-performing' **(see Issue 4h).** 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.

A number of selected STWs were checked for over-performance by looking at the impact on downstream water quality if the discharge were at its legal consented load. Where this showed there would be an adverse effect on downstream river quality, these works are listed in Figure 1. The 'Index of Over-Performance' is also presented to give a numerical measure of how far current effluent quality is from its legal consent limit. For each STW the Index of Over-Performance for a particular determinant is given. A high value indicates that current effluent quality is significantly better that the legal consent limit, compared to a low value which indicates current effluent quality is close to its legal consent limit.

With regard to flood protection, options need to be assessed to reduce the risk of flooding in Braintree **(see Issue 4d).** Increased run-off from recent industrial/residential developments and highways has increased the pressure on the river to carry flood flow. As with many urban areas, drainage systems in Braintree suffer from the high volumes of storm water run-off which place increasing pressure on the finite infrastructure and river channels. The growth of impermeable areas associated with new development and the tendency for increased intensity of rain storms add to this pressure. Furthermore, the quality of this run-off is often poor and detrimental to the well-being of the streams and watercourses. Diversion of such flows to the foul sewerage is both costly and prejudicial to the effective performance of the treatment works to which it would be conveyed. Alternative control and disposal needs to be developed to reduce the demands on the drainage system. To this end, a management framework based on integrated river catchment and drainage planning would allow development and coordination of local strategies.

Within the North Essex Plan area there are a large number of water mills which are of varying but considerable age, and within the next 50 years it is thought that they will all fail as water retaining structures unless maintained and renovated, or bypassed with new structures **(see Issue 4e).** There are over 80 such mills and the effects of their demise and loss of retained water level would be considerable in terms of amenity, landscape value and also from the point of view of environmental and recreational interests. The mills themselves usually involve a minimum of four separate structures - floodgates, control gates, weirs and mill head banks. Of the 80 mills within the Plan area, the Environment Agency hold the Mill Rights to 19 and can be considered to have some responsibility for the maintenance of the structures. Responsibility for refurbishment of these structures lies with the owner of the Mill Rights or the Navigation Authority (this is especially important on the River Stour where the Environment Agency is the Navigation Authority).

4.0 ACTIVITY TABLES

TABLE 4 DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT (cont)

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
4a A number of river stretches fail to achieve their existing RE target class for reasons which have yet to be fully established.	Carry out further investigations to ascertain reasons for failures.	Environment Agency	5k	■	■	■				Some investigations are already underway as actions from the Blackwater Catchment Management Plan (CMP).	Clare Guy
	Instigate a pollution prevention campaign.	Environment Agency	5k	■	■	■				There is an ongoing programme of pollution prevention visits	David Knagg
4b A number of river stretches fail to achieve their existing RE target class due to factors that cannot be attributed to point-source pollution.	Investigate oxygen loss routes in river systems.	Environment Agency	20k	■	■					This is currently part of a specific research project by Essex University.	Clare Guy
	Consider introducing physical structures with re-aeration characteristics.	Environment Agency	<1k		■	■				Await outcome of above research project.	Clare Guy
	Consider introducing a derogation for dissolved oxygen ensuring that a 'no deterioration' policy is applied.	Environment Agency	<1k		■	■				As above.	Clare Guy
	Reconsider length of classified rivers in light of low flow criteria.	Environment Agency	<1k		■	■				As above.	Clare Guy
	Review RE target.	Environment Agency	<1k		■	■				As above.	Clare Guy
4c Exceedance of *EC Surface Water Directive* nitrogen limit at public water supply intakes on the River Stour at Langham and Stratford St. Mary.	Promote agricultural best practice measures in the Plan area.	MAFF, Environment Agency	£5k	■	■	■	■	■	■	There is an ongoing programme of pollution prevention visits targeted at farms within the Stour catchment.	Steve Bewers
	Determine nitrogen loads discharged from all significant sources.	AWS, Private Dischargers	Staff time (Revenue)	■						Currently underway.	Clare Guy
	Consent nitrogen loads from STWs.	Environment Agency, AWS	Staff time (Revenue)	■	■	■	■	■	■	Nitrogen loads from STWs serving a population of >10,000 will be consented if the proposed SA(N) is approved.	John Daniels
	Review operational regime for water supply.	Water Companies	Unknown	■	■						
4d Flood Risk at and downstream of Braintree from the River Brain is currently unacceptable.	Partnership with developers and local authority to create a flood park upstream of Bulford, and balancing ponds with a primary conservation aim.	Environment Agency, Braintree District Council	£60k approx.	■	■	■				Potential works are currently being investigated.	John Claydon

4.0 ACTIVITY TABLES

TABLE 4 DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT (cont)

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
4e There is a need to fund, coordinate and carry out repairs to private structures.	When opportunities arise, consider buying out the Mill Rights.	Environment Agency	unknown	■	■	■	■	■	■	Works will be undertaken where and when practicable, and reported on in future Annual Reviews.	John Claydon
	Keep repairing and funding.	Environment Agency, landowners	180k	■	■	■	■	■			John Claydon
	Secure funding and build a programme of automating gates, where practicable.	Environment Agency	150k per structure	■	■						John Claydon
4f Eutrophication of the lower River Stour and failure to achieve its predicted biological score.	Research programme to investigate the chemical and biological aspects of the Ely Ouse Transfer Scheme through trials and monitoring.	Environment Agency	£20k	■	■	■	■	■		Additional monitoring is currently being carried out to assess the impact of the Ely Ouse Transfer.	Steve Bewers/ Robin Burrough
	Provide phosphorus removal at STWs which discharge to the River Stour, serving a population of >10,000 people.	AWS, Environment Agency	Unknown						■	The River Stour has been designated as a SA(E). Removal of phosphorus from qualifying sewage discharges will be required by the end of 2004.	John Daniels/ Steve Bewers
	Research to assess algal community along the River Stour and impact of Ely Ouse transfer.	Environment Agency	£1k	■	■	■				Algal monitoring is currently being carried out.	Steve Bewers/ Robin Burrough
4g Impact of the effluent discharge from Colchester STW on the quality of the Colne estuary.	Carry out improvements to the STWs.	AWS, Environment Agency	£7 5 million	■	■					AWS are currently modifying the STW to improve effluent quality.	Patrick Ripton
	Monitor for improvement to the water quality. Also assess estuary survey data.	Environment Agency	<1k			■	■	■	■	Assess ongoing routine monitoring data downstream of the STW.	Clare Guy/ Mark Johnson
4h 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.	Environment Agency, AWS	Staff Time (Revenue)	To be established with AWS in conjunction with Environment Agency.						Discharges are highlighted as candidates for expenditure under AMP3 with inclusion for priority negotiation.	John Daniels/ Steve Bewers/ Robin Burrough

TABLE 4 DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT (cont)

	Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
4i	There is a need to develop a strategy to define the the future management of the River Stour navigation.	Undertake, with partners, a feasibility study to investigate all options for the future management of the navigation.	Environment Agency, River Stour Trust	3-5k	■	■					Discussion underway. Scoping feasibility study.	Charles Beardall
		Implement preferred option from feasibility study.	Environment Agency, River Stour Trust	Unknown			■	■	■	■		Charles Beardall

TABLE 5 CONSERVING THE LAND

The sea defences along the Essex and south Suffolk coastline were constructed to protect the low-lying land behind and have been improved and maintained through continued investment by the Environment Agency and its predecessors over many years. As a consequence the standard and condition of these defences is generally high. The management of flood defences is carried out by the Environment Agency routinely through the maintenance programme. Capital flood defence schemes are set out by our Long Term Plan. The development and implementation of the Long Term Plan is overseen by the Essex Local Flood Defence Committee.

The relevant authority for controlling development in the floodplain is the local planning authority through the Town and Country Planning process. Local planning authorities and the Environment Agency are required by the Department of the Environment, Transport and the Regions (DETR) in Circular 30/92, on Development and Flood Risk, to liaise closely on flooding and surface water run-off matters. The aim is to ensure that flood risks that might arise from a development are recognised and made an integral part of the decision-making process undertaken by local planning authorities. Flooding and drainage issues are also to be taken fully into account during the preparation of land use development plans. In this respect the Environment Agency has responsibility to prepare surveys under Section 105 of the *Water Resources Act 1991* to define the nature and extent of flood risks. A five year programme of flood risk mapping is therefore being carried out in the Region **(see Issue 5a)** 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.

The Storm Tide Warning Service is operated by the Meteorological Office at Bracknell and it monitors and predicts tidal surge conditions that may affect the east coast of England. This gives advanced warnings of areas likely to be affected by tidal flooding, in order that effective action can be taken. The Environment Agency is then responsible for dissemination of flood warning information to those at risk in fluvial as well as coastal locations. Flood warnings are issued by the Environment Agency to the Police, emergency services and the media, and messages are placed on FLOODCALL, our flood enquiry telephone service (0645 88 11 88). In order to ensure that timely warnings are issued to the correct people, the Environment Agency operate a system of Flood Warning Standards of Service. By defining lengths of river, or reaches, with common land use interests, those areas with a high population concentration can be treated as priority. It is our aim to provide a two hour warning of commencement of flooding wherever practicable. During flood flows, mobile patrols keep structures and sluices clear of debris, whilst reporting on the flooding situation to the Agency's Area Emergency Incident Room.

A Shoreline Management Plan (SMP) is a document which sets out a strategy for coastal defence for a specified tidal frontage taking account of natural coastal processes and human (and other) environmental influences and needs. Research has suggested that the coastline of England and Wales can be divided into eleven major sediment cells. A sediment cell is defined as a length of coastline which is relatively self-contained as far as the movement of sand and shingle is concerned and where interruption to such movement would not have a significant effect on adjacent sediment cells. SMPs provide the vehicle for the long-term sustainable protection of our coastlines. Their objective is to improve the understanding of coastal processes, to work in partnership with all interests and organisations and to prepare an agreed framework for the long-term planning of coastal defences. The north Essex coast falls into Sediment Cell 3, from the Wash to the Thames. Although this cell forms a discreet unit it has been divided into sub-cells to provide a more practical basis for the initial production of Shoreline Management Plans. The north Essex coast falls

TABLE 5 CONSERVING THE LAND (continued)

into sub-cell 3d (Manningtree to Mardyke) of the Essex SMP and is divided into nine natural management units (see Issue 5a).

Leachates generated from the decomposition of wastes in landfill sites can contaminate groundwaters and surface waters. Contamination of groundwaters is more common from closed landfill sites which were operational during times when standards of containment were significantly lower than the present day (see Issue 5b). Examples of such sites in this Plan area are Great Baddow, Shalford, Woodham Walter, Acton and St. Osyth. The anaerobic decomposition of landfilled putrescible wastes disposed also generate landfill gas, a mixture of methane and carbon dioxide. This gas can migrate under the ground from an uncontained site and is potentially explosive.

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
5a There is a need to provide effective sustainable flood defence management to maintain the integrity of the Plan area's freshwater rivers and the coastal fringe.	Implement the objectives of the Essex SMP which will be treated as a working document to be reviewed every five years.	Environment Agency, local authorities, landowners, MAFF, English Nature, MoD	Unknown	■	■	■	■	■	■	Work ongoing.	John Hesp
	Continue to progress the production of Section 105 floodplain surveys in the Plan area.	Environment Agency	Unknown	■	■	■	■	■	■	Priority survey areas for Essex include Braintree, Chelmsford, Colchester, the Tendring Peninsula, the Stour and the Tollesbury Frontage.	Mick Whiley
5b Potential impacts on the environment from contamination tion originating from closed landfill sites.	Continued monitoring at known sites.	Environment Agency, landowners	Staff Time (Revenue)	■	■	■	■	■	■	Monitoring is ongoing at selected sites, nb. some sites are being monitored by site owners.	Steve Bewers
	If monitoring (see first activity) shows landfill may be of significant risk to the environment the owner will be encouraged to undertake remedial measures (nb. contamination may be controlled by capture of leachate and appropriate venting of landfill gas).	Environment Agency, landowners	Unknown	■	■	■	■	■	■	In respect of 'orphan' sites we will seek funding for 'clean-up' measures from the DETR.	Simon Wood

TABLE 6 MANAGING WASTE

Waste must be managed more sustainably and 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 Environment Agency should help identification of where waste minimisation initiatives should be targeted and where they have been successful. Section 5.6 in the 'Protection through Partnership' section 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 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.

Left: Waste Hierarchy

The land spreading 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 land spreading 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 **(see Issue 6a)**.

4.0 ACTIVITY TABLES

TABLE 6 MANAGING WASTE (continued)

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
6a There is a lack of information on land spreading of exempt wastes.	Improve levels of notification.	Environment Agency	Staff time (Revenue)	■	■	■	■	■		National policy development is currently in progress.	Janet Cochrane
	Enforcement work (over and above routine business).	Environment Agency	Staff time (Revenue)	■	■	■	■				Janet Cochrane
	Increased publicity/ education and pollution prevention visits.	Environment Agency	Staff time (Revenue)	■	■	■	■				Janet Cochrane/ Steve Bewers
	Demand more accurate laboratory analysis from waste disposer. A vast majority of the information is inadequate at present.	Environment Agency	Staff time (Revenue)	■	■	■	■				Janet Cochrane
	Produce and implement an advisory code of practice.	Environment Agency, MAFF	10k over five years	■	■						Janet Cochrane

4.0 ACTIVITY TABLES

TABLE 7 REGULATING MAJOR INDUSTRIES EFFECTIVELY

The odour problems from Haverhill STW have been occurring for around thirty years **(see Issue 7a)**. Although the odour problems have been evident at the treatment works, it is accepted that the chemicals/substances that combine to produce the odours enter the sewerage system from the town's industrial estates. These sources, and the mechanisms which intermittently result in persistent odours reaching the water supply intakes in the lower River Stour and Blackwater, need to be determined and controlled. Significant developments in process controls have taken place recently at a number of manufacturing sites as part of ongoing improvements to reduce the amount of these substances being present in the trade effluents. Further modifications, including separation of clean surface water to reduce the hydraulic load at the sewage works, are also being considered.

Several routine sample points on the estuaries and coastal waters have exceeded the limits for List II metals as laid down in the *EC Dangerous Substances Directive and the EC Shellfish Waters Directive* **(see Issue 7b)**. The Environment Agency commissioned the Centre for Environment Fisheries and Aquaculture Science (CEFAS), an executive Agency of MAFF, to review the available data and to determine the likely sources for these substances. They believed that the three principal sources were: freshwater rivers, known discharges (STWs and industry) and diffuse inputs. The most significant source of zinc was found to be sacrificial anodes on boats. The most significant source for copper was antifouling. Control of the sources of these metals will require National intervention and as such is outside the scope of this Plan. The Environment Agency operates a policy of reducing loads of dangerous substances wherever possible in line with the North Sea Conference.

There are a large number of industrial estates within the Plan area which account for a large proportion of the pollution incidents in the aquatic environment **(see Issue 7c)**. Industrial estates in Witham and Haverhill are two such examples but high numbers of incidents are recorded throughout the Plan area. The Agency endeavours to achieve improvements in the quality of surface water discharged from industrial premises by offering advice to estate owners and occupiers and by raising awareness of practices which threaten the quality of the environment. Pollution prevention inspections of premises in targeted areas are carried out by the Environment Agency, often in partnership with Anglian Water Services.

In addition to these proactive initiatives, the Environment Agency is also discussing with developers and local authorities alternative drainage systems designed to contain pollutants and control discharge flows. Such Best Management Practices are ways of minimising diffuse pollution using procedural and structural techniques. These can reduce the quantity of runoff, slow the speed of runoff to allow settlement, filtration and infiltration, and allow natural ways of treating the surface water before discharge to watercourses. Examples of the techniques employed include porous surfaces, retention ponds, reed beds, grass swales and wetlands. The application of such techniques must take account of the suitability of the local substrata, the economics and, in respect of established development, the practicalities of retrofitting the facilities.

4.0 ACTIVITY TABLES

TABLE 7 REGULATING MAJOR INDUSTRIES EFFECTIVELY (continued)

Issue	Activity	Responsibility Lead *other*	Cost to Agency (£)	98/99	99/00	00/01	01/02	02/03	Future	Comment	Agency Contact
7a Continued odour problems originating from Haverhill STW.	Continue to work with AWS to attempt to mitigate the impact on the river system.	Environment Agency, AWS	£25k	■	■	■	■	■		On-going industrial process optimisation through regulation and negotiation.	Steve Bewers/ Patrick Ripton
	Strengthening emergency response procedures.	Environment Agency, AWS	1k	■	■						Steve Bewers/ Patrick Ripton
7b Failure to meet *EC Dangerous Substances Directive* and *EC Shellfish Waters Directive* limits for heavy metals.	Control metals in direct discharges.	Environment Agency, AWS, traders	£0.5k	■	■	■	■	■		Consent standards are regularly reviewed and tightened as appropriate.	Steve Bewers/ Mark Johnson
	Develop best practices with marinas and boat yards in estuary system as part of National Strategy.	Environment Agency, BMIF, boat & marina owners, operators and users	£0.5k	■	■	■	■	■			Steve Bewers/ Mark Johnson
	Initiate further monitoring to identify sources.	Environment Agency, local authority	£0.5k	■	■						Steve Bewers/ Mark Johnson
7c A high proportion of pollution incidents (to the aquatic environment) are derived from industrial estates.	Programme of targeted pollution prevention visits.	Environment Agency, AWS	£25k	■	■	■	■	■		Ongoing joint AWS/ Agency pollution prevention campaign at all major industrial estates in Essex where AWS have adopted the Surface Water Sewer.	Steve Bewers/ David Knagg
	Employ a variety of remediation measures.	Environment Agency, AWS	Staff time (Revenue)	■	■	■	■	■	■	Routine Agency work.	Steve Bewers

5.0 PROTECTION THROUGH PARTNERSHIP

The 'Protection Through Partnership' section provides the opportunity to address longer-term management issues in partnership with others. It looks at how the Environment Agency can work with others for the benefit of the local environment. The timescales for action will depend upon our ability to work effectively with other groups, and requires a commitment from all to improve the environment.

The 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 catchment-wide basis. Also, it must be remembered that LEAPs are non-statutory documents. In order for their policies and actions to be effective, they therefore need to be incorporated into statutory documents, such as Structure Plans and Local Plans.

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. It is through these partnerships that we are able to fully contribute towards the goal of sustainable development.

This Section outlines some of the partnerships that are occurring, or are planned, within the North Essex Plan area.

5.1 MANAGING OUR WATER RESOURCES

DEVELOPMENT AND WATER SUPPLY

Partners: Water Companies.

The Environment Agency liaises with Anglian Water Services, Essex and Suffolk Water and Tendring Hundred Water, in order to manage water resources in the Plan area and to ensure that both demand management and demand forecast plans are appropriate. Within this framework and in conjunction with our abstraction licensing system the Environment Agency regulates the water companies and other abstractors to achieve the proper balance between the needs of the environment and other water users. Where water resources are fully committed then water could be supplied from elsewhere. However, the full impacts and costs of this will need to be assessed to ensure sustainability. If additional finance, capital, investment or infrastructure are necessary, then these costs will ultimately be borne by the developer and water company customers. It is also vital that development does not proceed ahead of due consideration to social and environmental costs. The Environment Agency will work with the water supply companies and local authority planners to ensure that all costs and implications of development are balanced against the need for sustainable water supplies. We will want sustainable water supplies to be agreed and demonstrated before development takes place.

The Environment Agency does place great emphasis on demand management especially where this will reduce pressures on the environment or prevent the need for the development of new resources. We encourage measures such as the water company's leakage control and metering programmes and initiatives to build water conservation into new developments, for example through installation of low water-use appliances. We will also work actively to discuss and consider alternative sources of supply, including aquifer storage and recovery, augmentation by waste water recycling as well as desalination.

5.2 ENHANCING BIODIVERSITY

BIODIVERSITY ACTION PLANS

Partners: Local Authorities, English Nature, Wildlife Trusts.

As part of the Environment Agency's input into Local Agenda 21 we 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, and have nearly completed, the Essex Biodiversity Action Plan with specific targets for habitats and species, many of which are relevant to this area. We are in a key position to influence many of these targets since Action Plans will be concerned with coastal habitats, wetlands and aquatic species (i.e. reedbeds, brackish lagoons, 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. The conservation of biodiversity will be a key indicator of the successful implementation of sustainable development in the Plan area.

CONSERVATION ENHANCEMENT PROJECTS

Partners: Wildlife Trusts, Anglian Water Services, Countryside Projects, Local Authorities, Others.

The Agency contributed to water level management work undertaken by the Blackwater Project at St. Peters Well, Mersea (part of the Blackwater Estuary SSSI). The area

demonstrates a full range of coastal transitional habitat types from estuarine mud flats, through shingle beach, coastal reedbed, saltmarsh and potentially diverse coastal grassland. The freshwater that emanates from St. Peters Well (now disused) which was formerly piped under the reedbed to the foreshore, has been re-routed through the reedbed to increase water levels. Levels within the site are controlled by a bund and drop-board sluice and a return pipe system allows the water to continue to run into the estuary.

At Rodbridge, on the River Stour, work was undertaken to open up some back channels to increase the physical and ecological diversity of the area. A pipe was installed under a footpath to allow the backwater to be linked with the main river system. The work was completed in agreement with Suffolk County Council.

ESTUARY MANAGEMENT PLANS

Partners: Coastal Authorities, English Nature, Harbour Authorities, Interest Groups.

The Environment Agency are involved in the production of the Colne Estuary Management Plan and are active participants in the sub-group. The Blackwater Estuary Management Plan is currently being implemented and the Environment Agency are part of the implementation forum. The Stour and Orwell Estuaries Management Plan was coordinated by a sub-group of the Suffolk Coast and Heaths Project. This sub-group is collectively known as the Estuaries Group and includes the Environment Agency.

The shared objectives formulated in each document are, for example, to maintain and enhance wildlife conservation and landscape, improve and extend facilities for recreation, resolve existing conflicts between interests and tackle development issues. As an active member of each of these groups, we are aware of, and aim to achieve, the objectives set out by the Estuary Management Plans and will work in partnership with the other members of the groups to implement the Management Strategies for these estuarine areas.

5.3 MANAGING OUR FRESHWATER FISHERIES

FISHERIES ENHANCEMENT PROJECTS

Partners: Angling Clubs, Fisheries Owners.

Opportunities for the Environment Agency to join with or assist Angling Clubs and Fisheries Owners in the design and implementation of management actions or schemes arise very frequently, particularly with respect to stillwater fisheries. The extent of the Environment Agency's involvement is highly variable, and can 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, and that any fish stocks under threat from water loss or pollution are rescued as appropriate. However, it is not always possible to take up potential opportunities for other practical involvement, because of the large number of cases which arise. Priority is given to public and angling club waters, rather than to those in private ownership. The Environment Agency will also seek to investigate (and provide appropriate advice) in all reported cases of fish mortality and fish disease. Every year, a considerable number of fisheries benefit from these arrangements, which form a key element of the overall fisheries service.

The launch of the 'Essex Angling Watch' in October 1997 represents a significant new measure for the protection of fisheries through organisations and individuals working in partnership. The scheme is similar to a Neighbourhood Watch, but is targeted specifically at angling-related crime throughout the County. Essex Angling Watch is being run by the Essex Angling Consultative Association, in cooperation with the Essex Police and the Environment Agency and is believed to be the first scheme of its kind in the country.

5.4 DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT

WATER LEVEL MANAGEMENT PLANS

Partners: English Nature, Wildlife Trusts, RSPB, FRCA, Landowners.

The implementation of Water Level Management Plans (WLMPs) requires partnerships between all individuals and organisations who have an interest within a Plan area. As the operating authority, the Environment Agency has responsibility for completing 17 WLMPs for parts of the North Essex area. These WLMPs are listed below.

Old Hall Marshes
Ramsey Marsh
Osea Marsh
Cattawade Marshes
Brightlingsea Marsh
Fingringhoe Wick
Bramble Island
New Moze Hall
Horsey Island
Tollesbury Wick Marshes
Steeple Marsh
Lauriston Farm
Howlands Marsh
Langenhoe Marsh
Cudmore Grove
Old Moze Hall
Walton Hall Marsh

Of the 17 shown above, 16 have been finalised and an Interim Management Statement is in place for Cattawade Marshes. This Plan is due to be finalised in March 1999.

The Environment Agency aims 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 works 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.

INVESTMENT BY THE WATER COMPANIES

Partners: 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 DETR and the Office of Water Services (OFWAT) as part of the Asset Management Plan (AMP) process which identifies the water companies capital expenditure within 5 yearly periods, over statutory and non-statutory requirements.

REDEVELOPMENT OF LAND AT SPRINGFIELD BASIN AND EXTENSION OF NAVIGATION

Partners: Chelmsford Borough Council.

Major redevelopment of Brownfield sites, including the extension of a navigation, is set out in Chelmsford Borough Council's local plan. The Environment Agency has agreed to work with the Borough to promote a joint development vision whilst ensuring that best environmental practices are enforced. Benefits will include improved recreational use of water, better riverside access and an improved river corridor environment.

CONCERN OVER BACTERIAL CONCENTRATIONS IN THE WEST MERSEA AND TOLLESBURY OYSTERAGES

Partners: Anglian Water Services.

West Mersea STW is now treating its effluent using ultra-violet methods to improve bacteriological water quality. Monitoring is ongoing in conjunction with the Environment Agency and this partnership has proved to be a major achievement in improving water quality.

SHELLFISH HARVESTING

Partners: Environmental Health Officers, Conservation Organisations.

Responsibility for compliance with the *EC Shellfish Hygiene Directive 91/492/EEC* 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 commercial shellfishery operations are located in numerous creeks of the Blackwater and Colne estuaries and Hamford Water.

Springfield Basin Lock, Chelmer/Blackwater navigation

OIL SPILL CONTINGENCY PLANS

Partners: Port Authorities, Maldon District Council, Colchester Borough Council.

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.

RECREATIONAL OPPORTUNITIES

Partners: Countryside Management Projects, Local Authorities.

The Environment Agency works closely with many countryside management projects, for instance the Dedham Vale and Stour Valley Project and the Colne Countryside Project, to improve recreational opportunities in the Plan area. A walks leaflet has been produced for the area between Dedham and Flatford in partnership with the Dedham Vale and Stour Valley Project that is extremely popular in an attractive tourist stretch of the River Stour.

BRAIN VALLEY PROJECT

Partners: Braintree District Council.

Discussions during the summer of 1997 concerned the opportunity for partnership between Braintree District Council and the Environment Agency to remediate and enhance the River Brain corridor through Braintree Town Centre. The Council has now received the project report from Hyder Environmental Consultancy regarding an outline of a linear park between Riverside and Skitts Hill within a longer length between Rayne Road (former A120) to the Braintree Bypass (new A120).

The Council have obtained EU Single Regeneration Budget Funding for the project. The development will be known as the John Ray Linear Park. It will incorporate public cycle and footpath access and new river bridges, public open space, wildlife areas, a reedbed zone to remediate residual leachate seepage from a 1960's refuse tipped area adjacent to the river, widening of a stretch for model boats and possible canoeing or other boating, together with the creation of several lakes adjacent to or connected with the river.

The scheme offers the opportunity for increasing flood storage and sediment management, improved self-purification, together with elimination of modification of redundant or dilapidated weir structures. Several surface water sewers outfalling in the stretch are thought to be contaminated by mis-connections and the scheme is an opportunity to remedy these. Water level enhancement is thought to be needed to enhance a fen area at Hoppit Bridge. This scheme compliments the Environment Agency's objectives for conservation and water quality enhancements and offers contributions to the need for flow storage and reduced velocity to compensate for increasing runoff rates from substantial urban development and redevelopment. There appears to be promising prospects for partnership on this scheme.

5.5 CONSERVING THE LAND

DEVELOPMENT

Partners: Local Authorities.

As a statutory consultee under Town and Country Planning legislation, the Environment Agency seeks to ensure that local planning authorities are aware of the environmental implications of an individual development when deciding on whether to grant planning permission. In some cases we will ask the local planning authority to impose conditions on a development, to ensure that impacts on the environment are acceptable. We will endeavour to work with the relevant District/Borough Councils to ensure that any development is sensitive to the needs of the local environment.

LOCAL AGENDA 21

Partners: Local Authorities.

Local Agenda 21 (LA21) has been adopted to ensure that sustainable development is achieved on a local scale. Within the North Essex Plan area, LA21 is at varying stages of production. The future involvement of the Environment Agency on these issues will very much depend on the status of LA21 within each of the local authority areas.

Because so many of the problems and solutions being addressed by LA21 have their roots in local activities, the participation and cooperation between local authorities and the Environment Agency will be of vital importance. 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 intend to support and contribute towards LA21 initiatives within the Plan area. The Consultation Report and the consultation period within the Plan process, positively reinforces the message of building partnerships, emphasising the importance of local action and assisting with achieving a greater sense of continuity.

BENEFICIAL USE OF DREDGINGS PROJECT

Partners: Harwich Haven Authority, English Nature.

The estuaries and intertidal areas within the Plan area have suffered from loss of this important coastal habitat. Saltmarsh loss is evident at Hamford Water and the estuaries of the Stour and Blackwater. The Environment Agency has been closely involved in work with Harwich Haven Authority to redress this problem, using dredged material as a means of replacing the lost land. Close and effective liaison has been necessary at all times to ensure that work is

sympathetic to the needs of the local environment.

COASTAL PROTECTION

Partners: Local Authorities, Harbour Authorities.

Within the framework of the SMP, we are continuing to encourage liaison opportunities with the relevant District Councils who have responsibilities for coastal defences under the *Coast Protection Act 1949*. This will ensure that our respective coastal management and sea defence activities are complementary and do not have any adverse effect on adjacent frontages.

5.6 MANAGING WASTE

FLY-TIPPING

Partners: Local Authorities, Police.

The introduction of the landfill tax in September 1996 has increased the pressure on the environment through the illegal disposal of wastes. Local authorities and the Environment Agency have seen an increased prevalence of illegal dumping in recent months and a continued problem of fly-tipping within the North Essex Plan area. We aim to work with the Police and local authorities to try to eliminate this problem.

LITTER

Partners: Local Authorities, Tidy Britain Group.

Although each local authority has specific responsibilities for litter control and clearance, the Environment Agency will endeavour to work with them, on tidal sections of beaches, to implement strategies to minimise this particularly acute problem. We have worked with local authorities at various stretches as part of our overall environmental strategy.

WASTE MINIMISATION SCHEMES

Partners: Industry, Local Authorities, Business Link.

As part of the Government's waste strategy, we are taking a key role in promoting waste minimisation within industry, and in the Environment Agency's Eastern Area a number of initiatives are either underway or at the planning stage.

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 Environment 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 Environment Agency staff as needed.

We were involved in setting up a major seminar about waste minimisation for Essex businesses in partnership with Essex County Council and Colchester Borough Council. As part of the seminar, the Environment Agency is helping a local family business (through the Best Practice Guide) to undertake a full waste minimisation exercise so that these experiences can be presented as a case study relevant to the local business community. It is hoped that the seminar will lead to the establishment of a waste minimisation club, where member businesses will be able to share experiences and discuss difficulties, as well as organising further help and information from various sources.

5.7 IMPROVING AIR QUALITY

AIR QUALITY

Partners: Local Authorities.

The *Environment Act 1995* extends responsibilities of local authorities to establish action target standards for certain air pollutants so as to improve air quality. This may involve more extensive measures involving parties other than those regulated by local authorities as operators of processes prescribed for their control, Part B processes, by the *Environmental Protection Act 1990*. The Environment Agency in its regulation of processes prescribed for its control, Part A processes, will be required to participate in the setting and achievement of such local standards. Local authorities will introduce assessments for local air quality in due course and, where it is shown to be necessary according to nationally agreed criteria, prepare Local Air Quality Management Plans for operation in defined areas where targets are unlikely to be met. The 'alert' threshold for any pollutant or combination of pollutants would define the level at which there is a potential risk of exceedance of any air quality standard. If the level were reached or approached in a particular area, it should therefore trigger a mandatory obligation on the relevant pollution control authorities, including the Environment Agency, to investigate and where appropriate take remedial action.

5.8 PUBLIC AWARENESS AND EDUCATION

EDUCATION

Partners: Business, Local Authorities, Schools, Wildlife Trusts, the Public.

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 considers environmental education to be vital and we are 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. For instance, we have recently distributed a CD-Rom package to a wide selection of Junior Schools in the Anglian Region, called 'Greener Futures'. This package forms a Lifestyles and Environmental Audit project with questionnaires and an extended interactive environment in which various games and tasks are embedded related to environmental issues. This package was created in partnership by the Environment Agency, Cambridgeshire County Council, the DETR and Peterborough Environmental City Trust.

We are also involved, and actively supporting, the Eco-Schools award scheme which enables schools to extend environmental lessons outside the classroom and apply them to the day-to-day running of the schools. The Eco-Schools award scheme can help schools to: improve the school environment; reduce litter and waste; reduce fuel and water bills; increase environmental awareness; involve the local community; gain business sponsorship; gain local publicity; and, create links with other schools in the UK and Europe.

It is also part of the Environment Agency's routine business to promote environmental education in other sectors of society, including business and industry, local authorities and other key players. The Local Environment Agency Plan process positively contributes towards education in a fundamental way. The Environment Agency 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.

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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(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 its highest priority and to meet this aim it provides 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.

APPENDIX A: The Role of the Environment Agency

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 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.

At 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 Services

Association of Drainage Authorities

Braintree District Council

Bury-St-Edmunds MP (David Ripley)

Chelmer and Blackwater Navigation

Coal Authority

Council for the Protection of Rural England (Lt. Col. D Mackay)

Countryside Commission

Dedham Vale and Stour Valley Project

English Sports Council

Environmental Services Association

Epping Forest District Council

Essex and Suffolk Water

Essex and Suffolk Water (Paul Bradford - AEG)

Essex County Council

Essex Estuaries Project

Essex University (RFAC link - AEG - Chris Mason)

Essex Wildlife Trust

Exchem plc.

Farming and Rural Conservation Agency

Inland Waterways - Regional and National

Kent and Essex Sea Fisheries Committee (AEG - Ken Green)

Long Distance Walkers Association

Magnox Electric (Dr Peter Lornie)

Maldon District Council

Ministry of Agriculture, Fisheries and Food

Rambler's Association

River Stour Trust

Royal Society for the Protection of Birds

Royal Town Planning Institute

Royal Yachting Association

Shellfish Association of Great Britain

Soil Association

St. Edmundsbury Borough Council

Suffolk County Council

Suffolk Wildlife Trust

Tendring Hundred Water

Tidy Britain Group

Uttlesford District Council

APPENDIX C: Errors in the Consultation Report

SECTION	ERROR	RAISED BY
Map 18	Fails to show the Scheduled Ancient Monuments at Cotton Hall, near Kedingham, Clare Castle and Clare Camp.	Dedham Vale and Stour Valley Project
Map 20	Shows the original boundaries of the Dedham Vale AONB: this was extended in 1992.	Dedham Vale and Stour Valley Project
PTP	The Dedham Vale and Stour Valley Project is a joint project funded by Suffolk and Essex County Council's and the five District/Boroughs in the area.	Dedham Vale and Stour Valley Project
6	The River Stour Trust is not a project but an amenity group promoting navigation on the Stour.	Dedham Vale and Stour Valley Project
5.6	PWS - there would appear to be a couple of mistakes with the Map. The pink dots should have the legend 'Tendring Hundred Water Company' and the green dot above Haverhill should in fact be red, as it is AWS's Great Wratting Works.	Anglian Water Services
5.2.2	The A414 is a primary route and should be listed with the other primary routes in the area.	Maldon District Council
Map 5	The A604 is no longer a primary route, having B classification now.	Exchem plc.

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 *Issue Title from the Consultation Report*
1a	1a	Actual flows are perceived to be inadequate to meet river needs.
1b	1b	Concern over the decline in freshwater levels to Cattawade Marshes SSSI.
1c	1c	There is a need to develop a better understanding of the extent and interaction of the aquifer system.
1d	1d	Problems of stagnated river flows, e.g. in the Rivers Brett, Colne, Pant and Chelmer. *Problems of stagnated river flows.*
1e	PTP	Existing available water resources are inadequate to meet future demands.
1f	1e	Need to review the operation, efficiency and environmental impact of the Stour Augmentation Groundwater Scheme (SAGS).
1g	1f	Current groundwater level monitoring is inadequate.
1h (i)	Deleted	Effects of the re-use of treated effluent from Chelmsford STW.
1h (ii)	Deleted	Effects of the direct discharge of treated effluent from Chelmsford STW into Hanningfield Reservoir.
2a	2a	There is a need to better understand the requirements of headwaters in the Plan area. *The need to better understand the requirements of headwaters in the Plan area.*
2b	2b	Requirement to improve habitat diversity within rivers and their floodplains.
3a	3a	Investigate and, where possible, ameliorate failures in fisheries biomass targets.
3b	3b	Concern over an adverse impact on angling success in the receiving Rivers Stour and Pant/Blackwater due to the operation of the Ely Ouse to Essex Water Transfer Scheme.
3c	3c	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.
4a	4a	A number of river stretches fail to achieve their existing River Ecosystem (RE) target class for reasons which have yet to be fully established.
4b	4b	A number of river stretches fail to achieve their existing River Ecosystem (RE) target class due to factors that cannot be attributed to point-source pollution.

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 *Issue Title from the Consultation Report*
4c	4c	Exceedance of *EC Surface Water Directive* nitrogen limit at public water supply intakes on the River Stour at Langham and Stratford St. Mary.
4d	4d	Flood Risk at, and downstream of, Braintree from the River Brain is currently unacceptable.
4e	4e	There is a need to fund, coordinate and carry out repairs to private structures.
4f	4f	Eutrophication of the lower River Stour and failure to achieve its predicted biological score.
4g	Deleted	Concern over the regulation of river levels and flows associated with the operation and possible increased use of the Ely Ouse to Essex Transfer Scheme.
4h	4g	Impact of the effluent discharge from Colchester STW on the quality of the Colne estuary.
4i	Deleted	Failure to meet *EC Bathing Water Directive* limit for bacterial criteria.
4j	4h	Concern over potential deterioration of river water quality, where present effluent quality is better than the current legal consent.
5a	5a	There is a need to provide effective sustainable flood defence management to maintain the integrity of the Plan area's freshwater rivers and the coastal fringe. *There is a need to provide effective defence and warning systems to protect people and property against flooding from rivers and the sea.*
5b	5b	Potential impacts on the environment from contamination originating from closed landfill sites.
6a	6a	There is a lack of information on land spreading of wastes.
6b	PTP	Increased incidence of fly-tipping.
7a	7a	Continued odour problems originating from Haverhill STW.
7b	7b	Failure to meet *EC Dangerous Substances Directive* and *EC Shellfish Waters Directive* limits for heavy metals. *Failure to meet EC Dangerous Substances Directive limits for heavy metals.*
7c	7c	A high proportion of pollution incidents (to the aquatic environment) are derived from industrial estates.

APPENDIX E: 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.

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.

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.

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 earths 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.

APPENDIX E: Glossary

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.

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

Plan area - referring to the North Essex 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 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.

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

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 F: Abbreviations and Units

AEG	Area Environment Group
ALF	Alleviation of Low Flows
AMP	Asset Management Plan
AONB	Area of Outstanding Natural Beauty
AWS	Anglian Water Services
BAP	Biodiversity Action Plan
BMIF	British Marine Industries Federation
CAP	Common Agricultural Policy
CDRom	Compact Disc for Computer Use
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CHAS	Chelmer Augmentation Scheme
CLA	Country Landowners Association
CMP	Catchment Management Plan
CPRE	Council for the Protection of Rural England
CWS	County Wildlife Site
DETR	Department of the Environment, Transport and the Regions
DO	Dissolved Oxygen
EC	European Community
EMP	Estuary Management Plan
EOETS	Ely Ouse to Essex Water Transfer Scheme
ESA	Environmentally Sensitive Area
FRCA	Farming and Rural Conservation Agency
IPC	Integrated Pollution Control
IWA	Inland Waterways Association
LA21	Local Agenda 21
LEAP	Local Environment Agency Plan
MAFF	Ministry of Agriculture, Fisheries and Food
MoD	Ministry of Defence
NFU	National Farmers Union
NVZ	Nitrate Vulnerable Zones
RE	River Ecosystem
REAP	Regional Environment Agency Plan
RFO	River Flow Objectives
RNC	River Needs Consent
RSPB	Royal Society for the Protection of Birds
RYA	Royal Yachting Association
SAC	Special Area of Conservation
SA(E)	Sensitive Area (Eutrophic)
SA(N)	Sensitive Area (Nitrate)
SAGS	Stour Augmentation Groundwater Scheme
SERPLAN	South East Regional Planning
SMART	Specific, Measurable, Agreed, Relevant and Time-Limited
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSSI	Sites of Special Scientific Interest
STW	Sewage Treatment Works
UWWTD	Urban Waste Water Treatment Directive
WLMP	Water Level Management Plan

UNITS	
km	kilometres
km^2	square kilometres
mm	millimetre
<	less than
>	greater than
%	percentage
k	thousand

APPENDIX G: Bibliography

ENVIRONMENT AGENCY AND FORMER NRA DOCUMENTS

Environment Agency (1998) *North Essex LEAP Consultation Report*

Environment Agency (1998) *North Essex Summary of Public Consultation Responses*

Environment Agency (1997) *Old Hall Marshes Water Level Management Plan*

Environment Agency (1997) *Tollesbury Wick Marshes Water Level Management Plan*

Environment Agency (1997) *Ramsey Marsh Water Level Management Plan*

Environment Agency (1997) *Steeple Marsh Water Level Management Plan*

Environment Agency (1997) *Osea Road Water Level Management Plan*

Environment Agency (1997) *Lauriston Farm Water Level Management Plan*

Environment Agency (1997) *Howlands Marsh Water Level Management Plan*

Environment Agency (1997) *Brightlingsea Marsh Water Level Management Plan*

Environment Agency (1997) *Cudmore Grove Water Level Management Plan*

Environment Agency (1997) *Langenhoe Marsh and Fingringhoe Wick Water Level Management Plan*

Environment Agency (1997) *Bramble Island Water Level Management Plan*

Environment Agency (1997) *Old Moze Hall Water Level Management Plan*

Environment Agency (1997) *New Moze Hall Water Level Management Plan*

Environment Agency (1997) *Walton Hall Marsh Water Level Management Plan*

Environment Agency (1997) *Horsey Island Water Level Management Plan*

Environment Agency (1997) *An Environmental Strategy for the Millennium and Beyond*

Environment Agency (1996) *The Environment of England and Wales - A Snapshot*

OTHER REFERENCES

Countryside Commission (1996) *A Living Countryside - Our Strategy for the Next Ten Years*

Department of the Environment (1997) *United Kingdom National Air Quality Strategy*

Department of the Environment (1996) *Indicators of Sustainable Development for the UK*

Department of the Environment (1994) *UK Biodiversity Action Plan*

LEGISLATION

EC Directives

EC Bathing Waters Directive 76/160/EEC

EC Birds Directive 79/409/EEC

EC Dangerous Substances Directive 76/464/EEC

EC Freshwater Fisheries Directive 78/659/EEC

EC Fish Health Directive 91/67/EEC

EC Habitats Directive 94/43/EEC

EC Shellfish Hygiene Directive 91/492/EEC

EC Urban Waste Water Treatment Directive 91/271/EEC

EC Surface Water Abstraction Directive 75/440/EEC

EC Shellfish Waters Directive 79/923/EEC

EC Groundwater Directive 80/68/EEC

STATUTORY INSTRUMENTS

Special Waste Regulations 1996

Conservation (Natural Habitats, & c.) Regulations 1994

Surface Waters (River Ecosystem Classification) Regulations 1994

Urban Waste Water Treatment (England and Wales) Regulations 1994

Waste Management Licensing Regulations, 1994

Conservation (Natural Habitats & c.) Regulations, 1994

Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991

ACTS OF PARLIAMENT

Environment Act 1995

Radioactive Substances Act 1993

Water Industries Act 1991

Water Resources Act 1991

Land Drainage Act 1991

Environmental Protection Act (EPA) 1990

Town and Country Planning Act 1990

Water Act 1989

Salmon Act 1986

National Heritage Act 1983

Disease of Fish Act 1983

Wildlife and Countryside Act 1981

Import of Live Fish (England and Wales) Act 1980

Salmon and Freshwater Fisheries Act 1975

Health and Safety at Work Act 1974

Control of Pollution Act 1973

Water Resources Act 1963

Coast Protection Act 1945

Disease of Fish Act 1937

MANAGEMENT AND CONTACTS:

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

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

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

ENVIRONMENT AGENCY
GENERAL ENQUIRY LINE
0645 333 111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

ENVIRONMENT AGENCY
EMERGENCY HOTLINE
0800 80 70 60

ENVIRONMENT AGENCY

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