

LOWER WITHAM CATCHMENT MANAGEMENT PLAN ACTION PLAN

13



ENVIRONMENT AGENCY

NATIONAL LIBRARY &
INFORMATION SERVICE

ANGLIAN REGION

Kingfisher House, Goldhay Way,
Orton Goldhay,
Peterborough PE2 5ZR



NRA

*National Rivers Authority
Anglian Region*

JANUARY 1996

KEY DETAILS

Area	1370 km ²
Population	97,673
Ground Levels	Maximum 120m ODN
	Minimum -1m ODN
	Highest Recorded Tide 5.75mODN

ADMINISTRATIVE DETAILS

County Councils	Lincolnshire
District Councils	North Kesteven South Kesteven East Lindsey South Holland
Borough Councils	Boston
Navigation Authorities	British Waterways (R Witham) 17.2 km Port of Boston (Witham, Haven) 10.6 km
NRA	Anglian Region - Northern Area
Water Company	Anglian Water Services Ltd
Major S.T.W	Boston Sleaford Anwick
Internal Drainage Boards	Witham 4th Black Sluice Witham 1st Skegness

SETTLEMENTS (> 3000 population)

Boston	23200
Sleaford	14000
Fishtoft	5300
Ruskington	4800
Kirton	3900
Cranwell	3300

UTILITIES

East Midlands Electricity
British Gas, East Midlands
British Telecom, Peterborough District

WATER QUALITY

General Quality Assessment of Rivers

GQA Grade	Km
A	0
B	0
C	14.1
D	56.2
E	25.1
F	0
Estuary Quality:	Witham Haven 11km CEWP Grade A

WATER RESOURCES AVAILABILITY

Ground Water	All available resources are fully committed.
Surface Water	Surface water is generally available during the winter period. At other times there is scope for development utilising resources which can be made available by taking advantage of river transfer schemes.

FLOOD PROTECTION

Length of Statutory Main River	240km
Length of NRA Tidal Defences	22km
Length of NRA Sea Defences	20km

FISHERIES

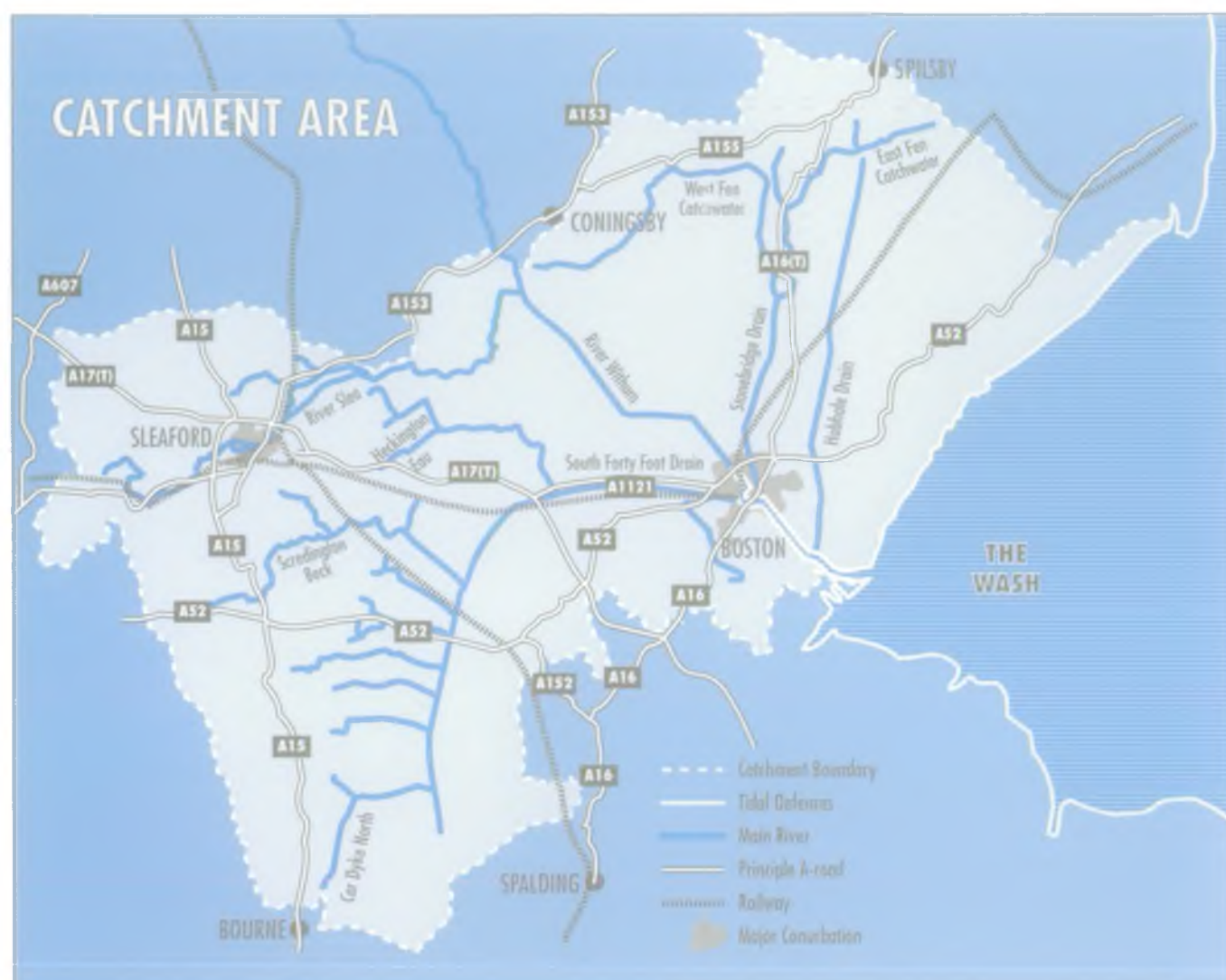
Length of cyprinid fishery	219km
Length of salmonid fishery	4km

CONSERVATION

Sites of Special Scientific Interest	13
Sites of Nature Conservation Interest	28
Nature Reserve	12
Scheduled Ancient Monuments	65

NAVIGATION

Navigation Structures	4 Operational Locks 10 Non-operational Locks
-----------------------	---





CONTENTS

	Page Number
1. Vision for the Catchment	1
2. Introduction	2
3. Review of the Consultation Process	3
4. Overview of the Catchment	5
5. The Relationship between Land Use and the Water Environment	11
6. Activity Plans	12
6.1 Glossary	13
6.2 Index of Issues	15
6.3 Issues	17
7. Summary of Comments Received During the Consultation Period	41
8. Amendments and/Addenda to Consultation Document	43
9. Future Review and Monitoring	44

Left: Boats at Chapel Hill

Below: Wildfowl on the Wash



1. VISION

Established in 1989 the NRA has the role of "Guardian of the Water Environment". As such the NRA is committed to protecting and improving the water environment in its broadest sense. The NRA's vision is to achieve the sustainable management of the Lower Witham Catchment, which balances the legitimate interests of all those who use the water environment.

Historically the fens were a mixture of wetland and marshes subjected to regular inundation, a haven to wildlife, renowned for its wildfowl and abundance of fish including salmon and burbot. The conversion and use of land for agricultural purposes over the centuries has significantly transformed the fenland into a prairie like landscape of great economic but reduced environmental value.

The NRA's challenge in this catchment is not to return to a bygone environment but it is to go some way towards re-dressing the balance lost over the centuries and to create a riverside environment which we can all enjoy. It is to encourage - through both its own and its partners endeavours - the selective restoration of wetland and fenland habitat and an improvement in water quality which would in turn encourage a more diverse flora and fauna. To achieve this in a sustainable manner, we must be realistic in approach and have regard for existing uses. This vision includes the protection and improvement of surface and ground water quality, providing effective yet environmentally acceptable flood defences and improving the recreational potential of the water environment.

Within the 5 year life of this plan the NRA and its partners aim to achieve the following key actions which will represent a significant step towards achieving this vision:

- to maintain and improve surface water quality;
- to liaise more closely with our partners and seek opportunities to improve the conservation value of the water environment: specifically by improving habitat diversity along watercourses and by reducing salinity in the lower reaches of the larger watercourses;

...the particular risks of tidal and fluvial flooding, by improving tidal ... maintaining the integrity of embanked

... value of the River Slea;

... which is used for Public Water Supply;

... Transfer and Augmentation schemes which meet

ends on the NRA's ability: to effectively respond
nt, to reconcile all of the uses demanded by the
where they are most needed.

air representatives is necessary to ensure local views
his vision for the catchment.

This book is due for return on or before the last date shown below.

24 APR 2002

2. INTRODUCTION

The rivers, lakes, estuaries, aquifers and coastal waters of England and Wales have never before been subject to such large and, in some cases, rapidly increasing pressures from the users of water. Many different uses interact or compete for water and will inevitably come into conflict with one another. The NRA is primarily responsible for the water environment in England and Wales and has to manage these waters and reconcile any conflict between water users.

- Our Mission Statement expresses the following principles:
- We will protect and improve the water environment by the effective management of water resources and by substantial reductions in pollution.
- We will aim to provide effective defence for people and property against flooding from rivers and the sea.
- In discharging our duties, we will operate openly and balance the interest of all who benefit and use rivers, groundwaters, estuaries and coastal waters.
- We will operate in a businesslike and efficient manner.

We have chosen to use Catchment Management Plans to translate these principles into action. The plans describe our vision for each catchment, identify problems and issues and propose actions that may be taken to resolve them. The plans also provide the means of promoting two key aspects of environmental management - land use planning and water quality objectives.

Catchment Management Planning involves the NRA working with local authorities, industry, commerce, water companies, the farming community, special interest groups, and the general public. It promotes environmental awareness and makes real environmental improvements at local level to meet the community's needs. The integrated approach will enable resources to be targeted where they are most needed. On April 1st 1996 the NRA will merge with the Waste Regulatory Authority and Her Majesty's Inspectorate of Pollution to create the Environment Agency. This plan will remain valid for the new organisation and will, in time, be revised to reflect the wider range of environmental responsibilities of the Environment Agency.

This Action Plan outlines areas of work and investment proposed by the NRA and other responsible parties over the next 5 years and will form the basis for improvements to the water environment in the Catchment. Progress against the Action Plan will be monitored and reported annually.



Coggesford Mill

3. REVIEW OF THE CONSULTATION PROCESS

The Lower Witham Catchment Management Plan Consultation Report was published on 26 June 1995. A meeting in Boston to launch the Plan was attended by representatives from industry, local authorities, environmental groups, sport and recreational groups, and other local groups with an interest in the catchment. This meeting launched the plan for a 3 month period of public consultation. Prior to the launch, pre-consultation meetings had been held with a number of key organisations as well as the NRA's customer consultative group, the Lincolnshire Catchment Panel, in order that their views could be taken into consideration at an early stage.

The consultation document presents the NRA's vision for the catchment. It gives an overview of the catchment, its current status and catchment targets. Where targets are not met, shortfalls are identified and these become catchment issues for which options are developed to address the shortfall.

Consultees were asked to consider the range and extent of catchment uses and activities, express views on the issues and options, and comment on how the development of strategies and plans should be progressed.

Approximately 175 copies of the Consultation and 350 copies of the Summary documents were distributed during the consultation period, comments were received from 19 organisations and members of the public. A summary of these comments and a corrigendum (for the Consultation Document) form appendices to this document.

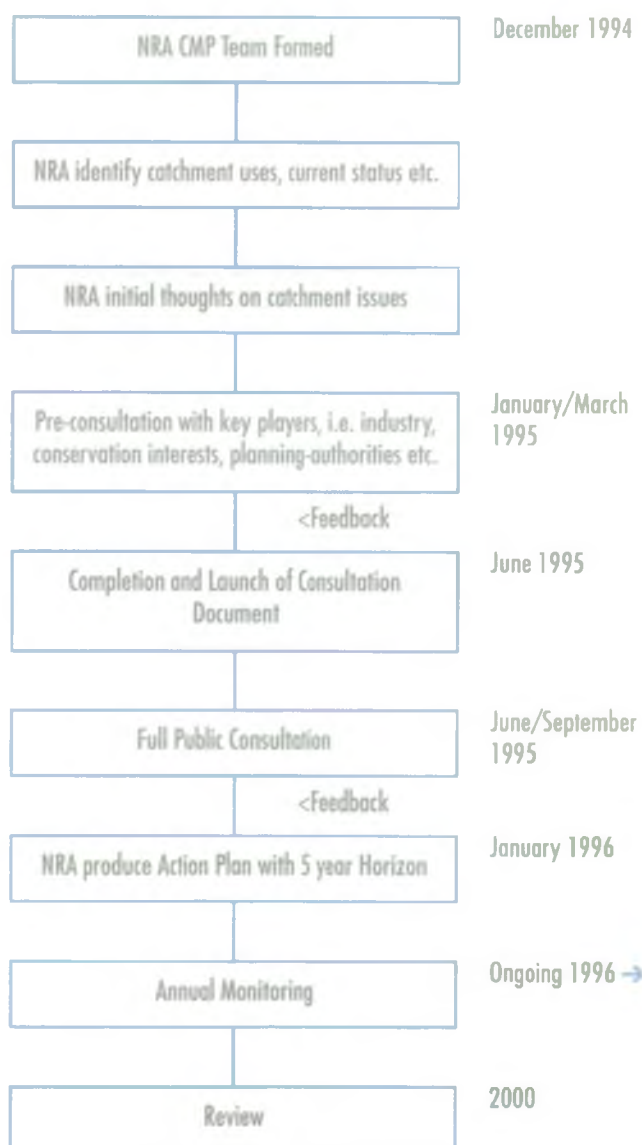
The list below names organisations who provided written comments on the consultation report:

Anglian Water Services Ltd.
Boston Borough Council
British Canoe Union
English Nature
Black Sluice Internal Drainage Board
Ministry of Agriculture, Fisheries and Food
National Farmers' Union
Royal Society for the Protection of Birds
Lincolnshire Anglers Consultative Association
Wildmore Parish Council
Sibsey Parish Council
Witham 4th Internal Drainage Board
British Waterways
North Kesteven District Council
South Holland District Council
Witham 1st Internal Drainage Board
Lincolnshire County Council
East Lindsey District Council

The consultation process has given the NRA a more comprehensive understanding of the issues and options presented in the Plan. As a consequence, 4 new issues have been identified (Issues 29-32) relating to: a) water quality in the Old River Sleas; b) the inadequate access to river and sea banks for recreational purposes; c) the long term capability of the Black Sluice Pumping Station; and d) the use of rivers, during summer months, for swimming. A number of other Issues in this Action Plan have been modified and combined.

The views of both the consultees and the NRA's Consultative Group (The Lincolnshire Catchment Panel), have been considered in the production of this Plan which will form the basis of ongoing monitoring, review, and discussion.

The overall planning process is identified in the timetable below:



3. REVIEW OF THE CONSULTATION PROCESS

The CMP for the Lower Witham Catchment is to be complemented by Plans for adjacent Catchments. A Plan for the Louth Coastal Area has already been produced (1993) and has recently had its 2nd Annual Review published (available on request from our office at Lincoln). Plans for the Upper Witham and Welland Catchments are scheduled to commence in January and July 1996 respectively, and one for the Wash is due to commence in December 1995.

The NRA recognises the links between this and adjacent catchments and will ensure the Plans for each are compatible.

CATCHMENT PLANNING TEAM

R Kisby	Catchment Planning Officer/Project Leader
D Watling	Water Resources
S Nugent	Water Quality
J Ulyatt	Flood Defence
D Fisher	Planning Liaison
I Forbes	} Fisheries, Recreation, Conservation and Navigation
N Bromidge	

LINCOLNSHIRE CATCHMENT PANEL MEMBERS

I Biddick	Humberside County Council
N Playne	County Landowners Association
G Keeping	Lincolnshire County Council
T Richards	Lincolnshire Anglers Consultative
T Wilson	Lincolnshire Anglers Consultative
D Carnell	Inland Waterways Association
M Crick	Lincolnshire Wildlife Trust
R Spaight	Salmon & Trout Association
T Coles	Institute of Environmental Assessment
R Harvey	British Waterways
R B Shields	East Lindsey District Council
C Middleton	West Lindsey District Council
J Shackles	English Nature
R Wardle	Countryside Commission
N Boast	Chemical Industries Association
P Bird	Eel Fishermen
P Thompson	Tioxide UK
P Fisher	RSPB
E Smith	Anglian Water Services Ltd
J Dodsworth	Lincolnshire LFDC

4. OVERVIEW OF THE CATCHMENT

The Lower Witham Catchment covers a large part of South Lincolnshire including large areas of flat fenland. Without artificial coastal and river defences much of the area would be marshland inundated by the sea.

To the west of Sleaford and Bourne the dip slope of the Lincolnshire Edge creates a gently undulating landscape. This limestone aquifer also forms an important source of groundwater for public water supply. To the north east of the Catchment lies the hills formed by the southern tip of the Lincolnshire Wolds.

The port of Boston and Sleaford, are the two largest towns in this predominantly rural area which has little industrial development. Intensive farming practices are employed in the fen areas; the demand for additional high grade land has over the years encouraged successive land reclamation schemes.

The use of water within the Catchment by a range of water dependent activities raises important issues relating to water resource management, groundwater protection, tidal defence, conservation enhancement, and the protection of water quality of the rivers. The Action Plan addresses each of these key features.



Lade Bank Pumping Station

4. OVERVIEW OF THE CATCHMENT

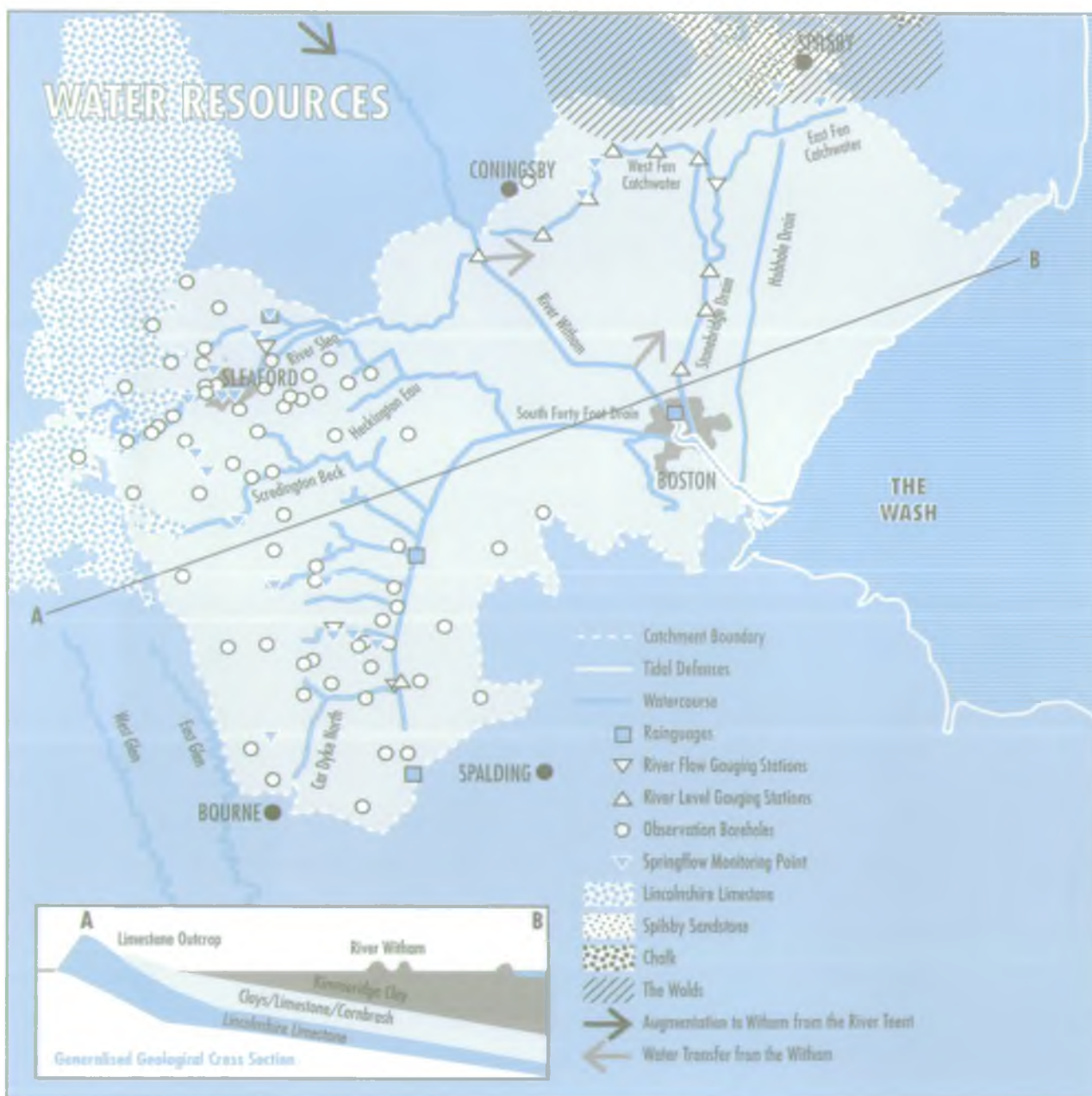
4.1 WATER RESOURCES

Demand for water in the Catchment is met from both groundwater and surface water sources. The Lincolnshire Limestone aquifer is the only significant source of groundwater in the Catchment. The aquifer is highly developed for public water supply purposes and in smaller volumes for private supplies in the Fens (west of the South Forty Foot Drain) for domestic and agricultural purposes. The resources of the aquifer are fully committed to existing licences and there is little scope for further development.

The River Witham is the most important surface water resource. The natural summer flows in the Witham are limited and are subject to significant demands upstream of this Catchment. In order to

meet demands the NRA can augment flows in the river by the transfer of water from the River Trent at Torksey near Lincoln. This allows existing demands within this Catchment to be met.

Extensive lengths of drains east of the Witham are used each summer to store water for irrigation purposes. The lowland system is filled in the spring of each year from the River Witham at Antons Gowt, near Boston, and subsequently augmented with licensed transfers at Dogdyke, near Coningsby. Winter storage of water for irrigation is encouraged by the NRA in preference to summer water abstraction.



4. OVERVIEW OF THE CATCHMENT

4.2 WATER QUALITY

Biological and chemical surveys of river quality in the catchment indicate water quality to be mostly fair. Exceptions to this are the Frampton Town Drain, the Hobhole Drain and the old River Slea which is affected by seasonal low flows and the discharge from sewage treatment works.

The slow moving and shallow nature of the lowland watercourses, discharges from sewage treatment works and the nutrient rich run-off from agricultural land encourages eutrophication. Other influences upon water quality in the Catchment include localised pollution from inadequate village sewage disposal systems, intermittent pollution to surface water from landfill sites, contaminated land and isolated pollution incidents. Salinity in the lower reaches of some watercourses poses a problem for fish populations and spray irrigators during periods

of low flow. Water quality within the tidal length of the River Witham is good.

The protection of groundwater is important in the catchment because of the significant use of groundwater for public water supply. Anglian Water Services have five boreholes in the Sleaford/Bourne area.

The Lincolnshire Limestone outcrop in the west of the Catchment is given little protection by soil cover and is vulnerable to diffuse sources of pollution such as those derived from agricultural activities. Establishing Nitrate Sensitive Areas and the promotion of good farming practices by MAFF are designed to prevent pollution and reverse the trend of rising nitrate concentrations in groundwater.



4. OVERVIEW OF THE CATCHMENT

4.3 FLOOD DEFENCE

The Catchment has 22 kilometres of tidal and 20 kilometres of sea defences which protect approximately 813 square kilometres of predominantly agricultural land and the town of Boston which lie below normal high tide levels.

Maintaining the integrity of these defences is of vital importance for the protection of both land and people, particularly against the background of rising sea levels.

The main arterial watercourses for this Catchment - the River Witham, the South Forty Foot Drain and the Maud Foster system (including the Stonebridge Drain and the East and West Fen Catchwaters) are embanked to prevent flooding of low lying land. These watercourses carry highland waters from the whole of the Witham Catchment across the fens to

discharge to the Witham Haven through structures designed to prevent tidal waters entering fluvial systems. Some lengths of river embankment, notably along the Witham and Maud Foster are in need of attention.

The system of flood protection/land drainage maintained by the NRA is complemented by an extensive network of drainage channels maintained by the Witham Fourth, Black Sluice, Witham First and Skegness Internal Drainage Boards. The importance of the agricultural industry to this area makes the effectiveness of both fluvial defences and land drainage a key feature of this plan.

The NRA operates a flood warning service whereby the Police and other organisations are advised of areas likely to be affected by flooding.



4. OVERVIEW OF THE CATCHMENT

4.4 FISHERIES

The Catchment is characterised by slow moving watercourses and seasonal fluctuations of river levels dictated by flood defence and agricultural requirements. Regular and extensive surveys are carried out on the Catchment's watercourses which indicate healthy fish populations which is reflected in the popularity of the Catchment with anglers.

The fish species to be found are typical of lowland rivers, i.e. roach, bream and pike. Brown Trout are

found in the River Slea which is an 'upland' spring fed tributary of the Witham.

During low flow periods the lower reaches of the major watercourses can suffer from saline intrusion causing fish mortalities. The River Slea, in particular, suffers from low flows - during drought periods lengths of the Slea dry up and fish populations suffer accordingly.



Angling is carried out extensively throughout the catchment

4.5 RECREATION

Recreational use of the water environment is extensive. The Witham, in particular, is popular with anglers, as a navigable waterway, and as a general amenity area with public footpaths. The River Slea particularly through Sleaford is regarded as having a high amenity value.

Other water based activities enjoyed include birdwatching, sailing, canoeing, and along designated

lengths of river bank, horse riding.

The coastline and marshland adjacent is an internationally important Nature Reserve and a valuable asset to the Catchment.

Numerous enclosed still waters exist which are used for both coarse and trout fishing.

4. OVERVIEW OF THE CATCHMENT

4.6 CONSERVATION

The Wash Estuary and parts of the immediately adjacent coastal plain contain a number of conservation areas of National and International importance. For the purposes of the Lower Witham Catchment Management Plan any issues related to this area will be dealt with in the Wash Estuary Management Plan (published Dec '94) and a Wash Catchment Management Plan to be developed by the NRA over the next eighteen months.

Elsewhere within the low lying areas of the Catchment, modifications to the river and drainage systems for land drainage purposes have resulted in degraded "in-channel" habitat and aquatic plant diversity and the loss of natural fenland habitat. This situation is accentuated by the practice of maintaining low winter water levels in many of the drainage systems. The naturally eutrophic condition of some watercourses

exerts further constraints on bio-diversity.

In upland zones in the west and north of the Catchment, areas of mixed farming include some sizeable woodlands, some of which are Sites of Special Scientific Interest (SSSI). As part of a new MAFF initiative and in order to give important water dependant SSSIs due consideration for their future well-being, interested parties, including English Nature and those drainage authorities operating in areas where SSSIs exist, have been tasked to produce Water Level Management Plans.

There are 65 Scheduled Monuments in the Catchment which are of national importance. Archaeologically rivers and lakes are important because within their alluvial deposits are well preserved and undisturbed sites.



East Keal

4.7 NAVIGATION

The port of Boston is home to a small fishing fleet and provides dock facilities for vessels up to 3,000 tonnes. The River Witham is a navigable waterway and provides a route from Boston and the Wash to Lincoln and beyond - its use is predominantly recreational.

The River Slea/Kyme Eau, which joins the Witham at Chapel Hill, is currently navigable, subject to river levels, as far as Cobblers Lock. Proposals are being considered by the Slea Navigation Society to extend

the Slea Navigation upstream to Sleaford. These proposals which could be of both recreational and commercial benefit to the area could have other impacts upon the water environment.

Limited recreational use is also made of drains maintained by the Witham Fourth Internal Drainage Board and the Maud Foster system, which are collectively recognised as the "Witham Navigable Drains".

5. THE RELATIONSHIP BETWEEN LAND USE AND THE WATER ENVIRONMENT

The vast majority of land within the Catchment (around 96%) is used for Agricultural purposes, much of this is highly productive and versatile. Crops grown include cereals, potatoes, beet and vegetables; bulbs and flowers grown in the open are also an important feature, 8% of total agricultural land was set aside in 1993.

Urban development of the area is limited, there has been an historical drift of population away from rural areas towards the urban centres of Boston and Sleaford and the larger villages. Industry and employment within the Catchment is closely allied to the farming sector, however, the port of Boston is also home to a small fishing fleet.

The Catchment is served by an improving network of roads which provide an essential link for the transport of goods beyond the Catchment; much of the farm produce is sent to the markets in London. Proposals to improve the road infrastructure by extending the M11 motorway into Lincolnshire are for the moment on hold. There are also wider proposals to improve facilities at Boston Docks by the construction of a sea lock.

Agricultural and urban development can have significant impacts on water quality and conservation interests in the Catchment as well as on surface water run-off characteristics. Because of the influence of Local Planning Authorities in development proposals it is important that links are established between

CMPs and Development Plans and that there is liaison between the NRA and Local Authorities.

As guidance for Local Authorities, the NRA has prepared a set of statements relating to the broad headings of water quality and water resources, flood defence, fisheries, conservation, recreation and navigation in the river corridor, and mineral workings and waste disposal. These statements are summarised in the NRA's "Guidance Notes for Local Planning Authorities on the Methods of Protecting the Water Environment through Development Plans".

Further detailed guidance on areas of concern to the NRA are provided in for example, DoE Circular 30/92 "Development and Flood Risk" where a Memorandum of Understanding has been signed by the Local Authorities' representative bodies and the NRA with regard to the scope and timing of providing floodplain maps. Without adequate consultation, there is an increased risk of inappropriate developments in the floodplain and similar areas of constraint. This circular and other Government policy guidance stresses the importance that Local Planning Authorities should attach to the NRA's advice.

At the strategic level, several Structure Plans and Unitary Development Plans are all moving towards adoption, and the NRA has suggested the inclusion of policies to protect and improve the water environment.



Aswarby

6. ACTIVITY PLANS

This section sets out the issues identified during the development of this Plan and for each specifies:

- an overall objective,
- the action the NRA proposes,
- those organisations with a responsibility towards resolving the issue,
- the timescale of proposed actions,
- the costs involved (where possible).

It has to be recognised that for some issues identified, the solutions will be achieved within the timescale of this Plan (5 years), and for others it will take considerably longer. Proposed actions may be constrained by changing priorities of both the NRA and “interested parties”, and by the availability of resources. All schemes promoted by the NRA are subject to strict cost benefit analysis before they are approved, and in seeking the commitment from other organisations, the NRA will seek to balance the interests of different water users. Given these constraints, the NRA expects the timescales denoted in the Plan will be accommodated.

KEY TO ABBREVIATIONS USED IN THE TABLES

AWS	Anglian Water Services	EN	English Nature	MAFF	Ministry of Agriculture, Fisheries and Food
ADAS	Formerly the Agricultural Development and Advisory Service	FWAG	Farming and Wildlife Advisory Service	NKDC	North Kesteven District Council
BBC	Boston Borough Council	IDB	Internal Drainage Board	NRA	National Rivers Authority
BW	British Waterways	IWA	Inland Waterways Association	RSPB	Royal Society for the Protection of Birds
DoE	Dept. of the Environment	LCC	Lincolnshire County Council		
		LPA	Local Planning Authority		

6.1 GLOSSARY OF TERMS USED IN THIS DOCUMENT

Abstraction	The removal of water from any source, either permanently or temporarily.
Aquifer	A water bearing-stratum situated below ground level. The water contained in aquifers is known as groundwater.
Culvert	Channel or conduit carrying water across or under a road, canal etc.
Dangerous Substances	Substances defined by the European Commission as in need of special control. This is because they are toxic, accumulate and concentrate in plants and animals, or do not easily break down into less dangerous substances. They are classified as List I or List II.
Demand Management	The promotion of ideas to encourage industry, agriculture and the public to reduce their demand for water.
Diffuse Source	Pollution from non-point sources.
Ecology	The study of relationships between an organism and its environment.
Eutrophic	A description of water which is rich in nutrients. At worst, such waters are sometimes beset with unsightly growths of algae.
Fauna	Animal life.
Fish Biomass	A measure of the quality of a fishery as found in terms of surveys, weight by area ie g/m ² .
Flora	Plant life.
Floodplain	Area of land adjacent to a watercourse subject to periodic inundation.
Fluvial	Relating to the river.
Foul Sewer	Sewer carrying waste from domestic and trade premises.
Geomorphology	Scientific study of land forms and of the processes that formed them.
Groundwater	Water which saturates a porous soil or rock substratum (or aquifer). Water held in storage below ground level.
Integrated Pollution Control	A method of pollution control which takes account of all environmental media : water ,air and land.
Dissolved Oxygen	The amount of oxygen dissolved in water. Oxygen is vital for life so this measurement is an important test of the health of the river.
Main River	The watercourse shown on the statutory 'Main River maps' held by NRA and MAFF. The NRA has permissive powers to carry out works of maintenance and improvement on these rivers.
Managed Retreat	The deliberate abandoning of an existing tidal defence in order to obtain economic and ecological advantage. A new defence may be constructed landward of the old line.
Minimum Residual Flow (MRF)	Target flow set locally and not legally defined.

6.1 GLOSSARY OF TERMS USED IN THIS DOCUMENT

Nitrate Sensitive Areas (NSA) and Nitrate Vulnerable Zones (NVZ)	Land in areas where water sources exceed a 50mg/l nitrate limit or are forecast to by the year 2010 are designated NVZ's. Farmers are required to observe an action programme to reduce nitrate loss from their land in both NVZ's and NSA's. In NSA's farmers can voluntarily undertake more extreme nitrate control measures and receive compensation. However, they do not receive compensation for such programmes where the land is designated a NVZ.
Permeability	The ease at which liquids can pass through rocks or a layer of soil.
Permissive Power	Power to undertake work where there is no obligation to do such.
RAMSAR Site	Wetland site of International Importance that is designated under the Ramsar convention.
Recharge	Water which percolates downwards from the surface into groundwater.
Riparian	Of, or on, land contiguous to the river.
Riparian Owner	Owner of riverbank and/or land adjacent to a river. Normally owns riverbed and rights to midline of channel.
River Quality	The level of water quality that a river should achieve, Objectives order to be suitable for its agreed use. Is being replaced by Water Quality Objectives (WQO's).
Saline waters	Water containing salts.
Salmonid Fish	Game fish eg. trout and salmon.
Sedimentary Processes	Process by which sediments are eroded and deposited along the coastline. This impacts on beach and foreshore levels which have an important affect on tidal defences.
Sustainable	Capable of being maintained at a steady level without exhausting natural resources or causing ecological damage.
Trade Effluent	Effluent derived from a commercial process/premises.
Tidal Structures	Structures built to prevent inundation from the sea - will include sea defences and river outfalls etc.
Wetland	An area of low lying land where the water table is at or near the surface for most of the time, leading to characteristic habitats.

6.2 INDEX OF ISSUES

1. The quality of the lower reaches of certain watercourses is adversely affected by saline ingress during periods of low flow.
2. Fish populations in the South Forty Foot River and River Witham suffer during periods of high flow.
3. The catchment has lost nearly all of its natural fenland habitat.
4. Areas of river channel and river corridor have been identified as having low plant species diversity.
5. The proposals by the Sleaford Navigation Society to restore the Slea navigation are constrained by water resources, water quality, flood defence and environmental concerns.
6. Low flows in the River Slea between Ancaster and Sleaford have a detrimental effect on the water environment
7. The fish population of Internal Drainage Board drains and the South Forty Foot Drain are adversely affected by low river levels during the winter months.
8. The proposed development of Boston Lock will have significant implications for the water environment
- 9.(1) The level of protection provided by existing tidal defences on the Witham Haven against flooding is being reduced by rising sea levels and by bank erosion.
- 9.(2) The condition of some lengths of river wall through Boston is poor
10. Nitrate concentrations in groundwaters exceed, or are expected to exceed 50 milligrammes per litre.
- 11.(1) The level of protection against tidal flooding along the coast is being reduced by rising sea levels.
- 11.(2) Land reclamation has taken place and private sea defences constructed, resulting in diverse responsibilities for sea defences.
12. The standard of flood defence along the lower River Witham is believed to be inadequate.
13. Locally inadequate riparian drainage systems result in flooding problems in a number of small villages
14. The standard of flood protection along the Maud Foster system is inadequate.
15. Inadequate local sewerage systems (including sewer dykes) result in localised pollution and have public health implications.
16. The quality of the Witham Haven in Boston is affected by the discharge of raw sewage from private properties.
17. Inadequate oil storage facilities within the catchment lead to serious oil pollutions affecting water quality
18. Litter accumulation occurs in watercourses close to urban areas.
19. Land contaminated as a result of past industrial practices causes the water quality in the Town Drain in Boston to fail the EC Dangerous Substances Directive.
- 20.(1) The NRA's views are not always adequately reflected in planning matters.
- 20.(2) The cumulative effect of piecemeal development has an adverse effect on flood defence, water quality, and conservation interests.

6.1 INDEX OF ISSUES

- 21.(1) The body responsible for navigation for the Maud Foster and West Fen catchwater drains is unclear.
- 21.(2) The uncontrolled use of the navigation could have flood defence and water resource implications
- 22. Bank erosion on the South Forty Foot is reducing it's standard of defence.
- 25. The quality of watercourses in the catchment are adversely affected by eutrophication.
- 26. The impact on abstractors and the local water environment of reducing flows from wild boreholes in the South Forty Foot Catchment is unknown.
- 27. The Slippery Gowt landfill site causes intermittent pollution of local watercourses and may have other environmental implications.
- 28. The storm sewer overflow at London Road Pumping Station in Boston which discharges to the Haven operates at an unacceptable frequency.
- 29. Water quality in the Old River Slea fails to achieve its long term RE target.
- 30. Recreational access to the water environment is restricted
- 31. Black Sluice Pumping Station is approaching the end of it's design life.
- 32. Members of the public are unaware of the dangers associated with swimming in rivers.

6.3. ISSUES

ISSUE 1 (COMBINED WITH ISSUE 24 FROM THE CONSULTATION DOCUMENT)

THE QUALITY OF THE LOWER REACHES OF CERTAIN WATERCOURSES IS ADVERSELY AFFECTED BY SALINE INGRESS DURING PERIODS OF LOW FLOW.

PRINCIPAL RIVERS AFFECTED ARE THE WITHAM, HOBHOLE, MAUD FOSTER, AND SOUTH FORTY FOOT DRAIN.

BACKGROUND

During extended periods of low flows, the salinities of a number of watercourses rises. Freshwater fish have a limited ability to adapt to this and if the change is too rapid it can cause fish mortalities, microinvertebrates are similarly affected. The flora of the watercourses are also adversely affected. Excessive salinity is a particular concern for the agricultural industry as the water may become unsuitable for spray irrigation purposes. The primary source of salinity is leakage around and through tidal structures and through sea banks, although salinity may also result from areas of land once used as "salt-pans".

With specific regard to the Witham the NRA can augment (increase) its flow by transfers of water from the River Trent at Torksey via the Fosdyke canal. When necessary the NRA uses this ability to manage the Witham in such a way as to maintain a positive flow to tide to reduce the threat from saline ingress. The efficiency of this process however is currently limited by the lack of available water and too few gauging stations on the Lower Witham which could assist in managing river flows.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
All Rivers: To reduce saline ingress to rivers.	Monitor and evaluate existing control methods. Prioritise areas for action.	NRA	Witham 4th IDB British Waterways	■	■	■	■	■		1.5 p.a.
R. Witham: To minimise saline ingress to the Witham.	Improve seals on doors at Grand Sluice to minimise saline ingress.	NRA	BW	■						10-20
	Ensure a regular programme of salinity monitoring to evaluate the effectiveness of the above.	NRA			■	■	■	■		0.5 pa
	Improve arrangements and operations to ensure residual flows to tide at Grand Sluice are effected during low flow periods.	NRA	BW		■	■	■	■		(1)
To ensure that transfers to the Witham are managed efficiently.	Keep the need for river gauging under review.	NRA				■	■	■		
	Construct ultrasonic river gauging station, dependent upon success of other actions and increase in demand for river water.								■	80

(1) Internal administrative costs

6.3. ISSUES

ISSUE 2

FISH POPULATIONS IN THE SOUTH FORTY FOOT DRAIN AND RIVER WITHAM SUFFER DURING PERIODS OF HIGH FLOW.

BACKGROUND

The lower reaches of the South Forty Foot Drain and River Witham are trapezoidal channels offering few features behind which fish can shelter during periods of high flow. Under such conditions, many fish are swept out to sea where they perish.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To reduce the impact of high flows on resident fish populations.	Construct off-river refuge areas.	N.R.A. Landowner			■	■				50
To improve natural river features that provide bankside shelter.	Create river features that provide shelter i.e. wet berms, reefs, holes during capital schemes.	N.R.A.			■	■	■	■		50

ISSUE 3

THE CATCHMENT HAS LOST NEARLY ALL OF ITS NATURAL FENLAND HABITAT.

BACKGROUND

Intensive agricultural practises have resulted in fenland being drained over the last two centuries to increase its productivity and economic value. The consequence of this has been the loss of an environmentally important habitat along with its associated flora and fauna.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To increase the amount of fenland habitat.	Identify suitable areas of land and undertake fenland restoration schemes.	N.R.A. M.A.F.F. Landowners	Landowners R.S.P.B. I.D.B. F.W.A.G.	■	■	■	■	■		100 (per major site)
	Support organisations considering fenland restoration.	R.S.P.B. I.D.B. Landowner	N.R.A.	■	■	■	■	■		(1)

⁽¹⁾ Indeterminate

6.3. ISSUES

ISSUE 4

AREAS OF RIVER CHANNEL AND RIVER CORRIDOR HAVE BEEN IDENTIFIED AS HAVING LOW PLANT SPECIES DIVERSITY.

BACKGROUND

Intensively managed rivers are subject to works aimed primarily at supporting the flood defence and land drainage. The resultant river channels lack diversity and habitat which in turn restricts the diversity of the community. The ecological value of the wetted margin of these rivers is degraded and minimal.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Improve the amount of valuable wet margin present on rivers and drains.	Undertake habitat enhancement and restoration as part of flood defence maintenance and capital works.	N.R.A. I.D.B.	Landowner	■	■	■	■	■	■	TBE
	Collaborate with landowners to restore wetland habitat.	N.R.A. Landowner M.A.F.F.	R.S.P.B.	■	■	■	■	■	■	(1)
	Enhance the ecological status of N.R.A. owned river banks by reviewing operational management and encouraging grazing.	N.R.A.	F.W.A.G.	■						TBE
To increase the number of bankside trees.	Encourage tree planting on river banks not deemed flood bank.	N.R.A. I.D.B. Landowner	M.A.F.F. English Nature	■	■	■	■	■	■	TBE

⁽¹⁾ Individual contributions towards schemes to be evaluated.

TBE To be established.

6.3. ISSUES

ISSUE 5

THE PROPOSALS BY THE SLEAFORD NAVIGATION SOCIETY TO RESTORE THE SLEA NAVIGATION ARE CONSTRAINED BY WATER RESOURCES, WATER QUALITY, FLOOD DEFENCE AND ENVIRONMENTAL CONCERNS.

BACKGROUND

The restoration of the Slea as far as Sleaford is a keenly sought aim by boating groups and commercial interests. The NRA is keen to support initiatives which increase the water based recreational value of this Catchment. It does, however, have to balance that interest against flood defence, water quality, conservation and fisheries interests, which could be adversely affected as a consequence of such a scheme. The NRA's prime concern is the availability of water to facilitate such a navigation.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To ensure that any restoration of the Slea Navigation is carried out in an environmentally sensitive way.	Continue close liaison with all parties involved.	Slea Navigation Society. Inland Waterways Association.	N.R.A N.K.D.C. Public Conservation organisations	■	■	■	■	■		(1)
	Carry out a full environmental assessment.	Slea Navigation Society.	N.R.A. I.W.A. Sleaford public. Conservation organisations.			■				15

(1) Internal Administration costs.

6.3. ISSUES

ISSUE 6

LOW FLOWS IN THE RIVER HAVE A DETRIMENTAL EFFECT ON THE WATER ENVIRONMENT

BACKGROUND

Springs forming the source of the River Slea periodically fail causing river flow in certain sections to cease and water quality in some sections to deteriorate. The impact of low flow on flora and fauna - particularly brown trout is unacceptable. Low flow problems may be accentuated by water abstraction in the area.

An augmentation scheme for the Slea has recently been commissioned however, this was primarily designed to maintain river levels through Sleaford for amenity purposes. Environmental benefit may also derive from this work.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To maintain and where feasible improve the environmental value of the River Slea	Continue to maintain river levels through the town of Sleaford by augmentation of the river.	NRA		■	■	■	■	■	■	c.7-8 pa
	Review operational performance of the river augmentation.	NRA			■	■				2
To improve the understanding of the local impact of abstraction	Install and collect data from local piezometers to improve understanding of interaction between limestone and overlying deposits.	NRA			■	■				5
	Using a mathematical model, carry out simulations of different abstractions to determine response of river flows.	NRA			■					5
	Monitor the effect of abstraction being relocated to the east of Sleaford.	NRA/AWS			■	■				TBE
	Review options for improving the R. Slea	NRA					■			(1)

¹⁸ To be evaluated.

⁽¹⁾ Indeterminate

6.3. ISSUES

ISSUE 7

THE FISH POPULATION OF INTERNAL DRAINAGE BOARD DRAINS AND THE SOUTH FORTY FOOT DRAIN ARE ADVERSELY AFFECTED BY LOW RIVER LEVELS DURING THE WINTER MONTHS.

BACKGROUND

The management of some of the large fenland drains in this Catchment involves the practice of holding levels low for flood defence purposes. This practice impacts on the ecology of these drains and can cause fish populations to congregate in very high densities in any available deep areas eg where pumped water is discharged into the South Forty Foot. When these pumps are operated fish are sucked into the pumps and perish.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To improve the regime of water level management in those drainage systems where this problem occurs.	The controlling authority to investigate the possibility of increasing winter water levels.	I.D.B. N.R.A.	M.A.F.F. English Nature. Landowners. Boston Angling Club.		■	■				10
To protect vulnerable populations from damage due to pumping evacuation.	Develop pump warning systems to scare fish from pump inlet.	N.R.A. I.D.B. F.W.A.G.					■	■		10
	Provide other deep pool areas where fish can congregate.	I.D.B. N.R.A. Landowners F.W.A.G.				■				30 per site

ISSUE 8

THE PROPOSED DEVELOPMENT OF BOSTON LOCK WILL HAVE SIGNIFICANT IMPLICATIONS FOR THE WATER ENVIRONMENT

BACKGROUND

Proposals are under way to consider the feasibility or otherwise of constructing a sea lock for Boston. This will obviously have implications for the NRA in terms of its flood defence, land drainage, water quality and conservation interests. A number of other issues in this plan are impacted upon by these proposals.

It is important that the NRA involves itself with the planning of this project to take maximum benefit from opportunities this project might bring.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To ensure due regard of the needs of the water environment is given in respect of these proposals.	Continue effective liaison with relevant organisations.	Port of Boston. B.B.C. L.C.C. N.R.A.		■	■	■	■	■	■	(1)

(1) Internal administrative costs.

6.3. ISSUES

ISSUE 9 (Combined with Issue 23 from the Consultation Document)

SUB ISSUE (1)

THE LEVEL OF PROTECTION PROVIDED BY EXISTING TIDAL DEFENCES ON THE WITHAM HAVEN AGAINST FLOODING IS BEING REDUCED BY RISING SEA LEVELS AND BY BANK EROSION.

SUB ISSUE (2)

THE CONDITION OF SOME LENGTHS OF RIVER WALL THROUGH BOSTON IS POOR

BACKGROUND

SUB ISSUE (1)

Along the Lincolnshire coastline sea levels relative to land levels are rising at an estimated 6mm per annum. The cumulative effect of this to the year 2030 is a 210mm rise in levels.

Existing sea defences have taken a rise in sea level into account, however, by early next century the standards of defence will have been reduced and the prospect of raising the defence still higher will have to be considered.

In the more immediate future the Haven channel; which is subjected to tides, wave action and boat wash, is suffering from erosion which, if allowed to continue, would undermine the stability of the defences.

(A strategy to deal with this problem is currently being implemented).

SUB ISSUE (2)

A mixture of steel piling, brick and concrete walls line the tidal channel through Boston. Some support important flood defences and are maintained by NRA. Some do not form part of the flood defences and are in private Ownership.

The condition of these structures is variable, lengths of wall have been replaced in recent years however the structural condition of most is unknown.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Provide appropriate and effective tidal defences/long term.	Produce tidal defence strategy for Witham Haven to accommodate future rises in sea level	NRA MAFF						■		TBE
	Maintain and repair revetment on channel banks in line with the existing outfall strategy	NRA		■	■	■	■	■	■	1200

TBE To be evaluated.

NB: The proposals to construct a sea lock for Boston could affect this requirement if, for example, it were to be designed with the dual purpose of providing a barrier against high tide levels.

6.3. ISSUES

ISSUE 10

NITRATE CONCENTRATIONS IN GROUNDWATERS EXCEED, OR ARE EXPECTED TO EXCEED 50 MILLIGRAMMES PER LITRE.

BACKGROUND

In the west of the Catchment where the Lincolnshire limestone aquifer is given little protection by the soil cover and is highly vulnerable to diffuse sources of pollution. Agricultural practices within this part of the Catchment ie intensive land use, with organic manures supplemented by the use of fertilisers has contributed to the presence of high concentrations of nitrates in the groundwaters.

The EC Surface Water Abstraction Directive 75/440/EEC and EC Nitrate Directive 91/676/EEC requires compulsory controls where nitrate levels exceed or are at risk of exceeding 50mg/litre. Zones where this risk exists in the catchment are identified on Map 18 of the CMP Consultation Document. These have been designated as Nitrate Vulnerable Zones (NVZ) and Nitrate Sensitive Areas (NSA) by the Ministry of Agriculture Fisheries and Food in order to protect groundwater from nitrate pollution.

Through these designations the aim is to change farming practices and water quality improvements are expected to follow.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To reduce nitrate concentrations in groundwater.	Designate NVZs. This will require farmers to follow the Code of Good Agricultural Practice and such other measures as may be introduced. (Without compensation)	MAFF DOE	Farmers	■	■	■	■	■	■	(1)
To reduce nitrate concentrations in groundwater used for public water supply abstractions	Designate NSA. Farmers invited to adopt measures over and above the Code of Good Agricultural Practice. (In return for which compensation is given.)	MAFF	Farmers	■	■	■	■			(1)
	Monitor concentrations of nitrates in groundwater	NRA		■	■	■	■	■	■	12 p.a.
	Monitor levels of nitrates leaching from soils.	MAFF		■	■	■	■			(1)

⁽¹⁾ The costs and benefits of changing farming practices may only be determined after operational experience of the various schemes designed to limit nitrate application. Compensation payments are available under the NSA scheme.

6.3. ISSUES

ISSUE 11

- A) THE LEVEL OF PROTECTION AGAINST TIDAL FLOODING ALONG THE COAST IS BEING REDUCED BY RISING SEA LEVELS.
- B) LAND RECLAMATION HAS TAKEN PLACE AND PRIVATE SEA DEFENCES CONSTRUCTED, RESULTING IN DIVERSE RESPONSIBILITIES FOR SEA DEFENCES.

BACKGROUND

Existing standards of defence against tidal flooding along some lengths of the coastline between Boston and Wainfleet are below the NRA Standards of Service target. Rising sea levels will further impact upon their effectiveness.

This issue is complicated further as a consequence of successive land reclamation schemes by farmers which have resulted in one and sometimes two private sea defence structures being constructed, in front of those maintained by the NRA, affording different standards of flood protection.

Any proposal for improvement work requires environmental and economic consideration and justification. The defence line must be sustainable and conform to the Shoreline Management Plan (to be completed Spring 1996).

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Provide appropriate and effective long term tidal defences.	A flood defence strategy will be developed by the NRA in line with the SMP.	NRA MAFF	EN		■					40
	Implementation of this strategy.	NRA MAFF			■	■	■	■	■	(1)

⁽¹⁾ Monies have been identified in the NRA's Long Term Plans (£1095K) to fund any necessary works.

6.3. ISSUES

ISSUE 12

THE STANDARD OF FLOOD DEFENCE ALONG THE LOWER RIVER WITHAM IS BELIEVED TO BE INADEQUATE.

BACKGROUND

The flood defence standards for lengths of the Lower Witham between Lincoln and Boston including its major tributaries are below the NRA Standards of Service targets. This has arisen in part as a consequence of the high flows the Witham has experienced in recent times due to changes in the catchment's characteristics. A study to assess the situation and to put forward options to resolve the situation has been initiated and its outcome is awaited (due 1996\7).

The proposals to develop a Sea Lock for the Port of Boston will have significant implications for flood defences.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Provide effective defence for people and property against flooding.	Carry out a study into existing standards of defence along the R. Witham and its tributaries.	NRA		■						(1)
	Consider any shortfalls found against NRA target standards and decide an appropriate strategy for the maintenance/improvement of the Witham's flood defences			■						34
	Implement Strategy	NRA/MAFF			■	■	■	■	■	TBE

⁽¹⁾ A sum of £288k has been spent to date on a number of studies relating to the catchment's hydrological and hydraulic conditions, bank stability analysis, environmental status and economic justification. This information will be used in formulating the NRA's strategy for the Lower Witham.

TBE To be evaluated.

6.3. ISSUES

ISSUE 13

LOCALLY INADEQUATE RIPARIAN DRAINAGE SYSTEMS RESULT IN FLOODING PROBLEMS IN A NUMBER OF SMALL VILLAGES

BACKGROUND

The NRA uses its powers to alleviate flood risks for designated main river stretches only. There are locations within the catchment, such as Horbling, Billingborough and Newton which suffer from, or are at risk of, flooding from non-main rivers. This risk arises because drainage systems have been inadequately maintained or have been the subject of indiscriminate and uncontrolled culverting. In these areas, the responsibility for maintenance rests with riparian owners. County, District and Borough Councils have permissive powers to alleviate flood risks on non-main rivers outside Internal Drainage Board areas

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To reduce the incidence of local flooding from riparian's drainage systems and encourage a greater understanding of responsibilities for non main river watercourses.	Agree consistent approach and actions with bodies having responsibilities and power under the Land Drainage Act 1991.	NRA	District & County Councils IDBs Riparian Owners	■	■	■	■	■		(1)
	Produce information brochures for public education.	NRA	District & County Councils IDBs Riparian Owners	■	■	■	■	■		(1)

(1) Costs depend on actions required to resolve individual problems.

The NRA recognises the need for a collaborative approach to resolving non-main river problems and will initiate discussions with others to seek solutions.

6.3. ISSUES

ISSUE 14

THE STANDARD OF FLOOD PROTECTION ALONG THE MAUD FOSTER SYSTEM IS INADEQUATE.

BACKGROUND

The standard of flood protection along lengths of the Maud Foster system approximates to a 1:10 year return period. The river is heavily silted up, not having been dredged for 50 years. A program of de-silting the watercourse started in 1994 and work of a conservation nature (at Hagnaby Lock) to create a new wetland\fenland feature due for completion by the end of 1995 will also have associated flood defence benefits.

Along the Stonebridge Drain the condition of the river banks is starting to deteriorate - in time this will increase the risk of flooding along the system.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Provide standards of defence consistent with land use.	Ensure the river system performs at optimum by carrying out maintenance works to remove excessive siltation.	NRA		■	■	■				700
	Undertake annual maintenance works to manage the weedgrowth problem.	NRA		■	■	■	■	■		10 p.a.
	Create fenland/washland areas to store flood water as part of conservation initiatives.	NRA/ landowners	RSPB FWAG MAFF	■						(1)
	Investigate further conservation sites for fenland\ washland creation.	NRA	RSPB FWAG MAFF		■					(2)
	Reinstate lengths of bank to design level.	NRA		■						(3)
	Continue to monitor the condition of the banks.	NRA		■	■	■	■	■		(2)

⁽¹⁾ Costs included in Issue 3.

⁽²⁾ Ongoing administrative costs.

⁽³⁾ Costs included in first action (700).

6.3. ISSUES

ISSUE 15

INADEQUATE LOCAL SEWERAGE SYSTEMS (INCLUDING SEWER DYKES) RESULT IN LOCALISED POLLUTION AND HAVE PUBLIC HEALTH IMPLICATIONS.

BACKGROUND

A number of small watercourses and ditches suffer from localised pollution because of inadequate village sewage disposal systems - a typical example of such is Swaton, where discharges to the watercourse are made from septic tank overflows. The problem manifests itself in terms of smell and appearance.

Sewer dykes are channels, open for most of their length, into which foul sewage discharges, and has discharged, for many years. Problems have arisen in dealing with sewer dykes because responsibility for them has not been legally established.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Improve Water Quality.	Identify the responsible body for disputed sewer dykes.	NRA	District Councils AWS	■	■	■	■	■		(1)
	Provide District Councils with prioritised list of problem areas.	NRA		■						(1)
	District Councils to requisition schemes as funds allow.	District Councils	AWS	■	■	■	■	■		(2)

⁽¹⁾ Internal administration costs.

⁽²⁾ Indeterminate.

6.3. ISSUES

ISSUE 16

THE AESTHETIC QUALITY OF THE WITHAM HAVEN IN BOSTON IS AFFECTED BY THE DISCHARGE OF RAW SEWAGE FROM PRIVATE PROPERTIES.

BACKGROUND

A number of properties in High Street, Boston have historically discharged their foul water directly to the Witham Haven, there being no suitable foul sewer to connect to. While this discharge affects the aesthetic quality of the Witham Haven locally it does not affect the Haven's overall water quality classification.

Anglian Water Services and Boston Borough Council are currently in negotiation to resolve this problem. If not resolved, this will have greater water quality implications if or when the 'Boston Sea Lock' is developed.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Raw sewage discharges to cease by December 1997.	Sewer to be provided by December 1996.	Boston BC. Anglian Water Services.	NRA		■					
	Property owners to connect to new sewer by December 1997.	Property owners.	NRA			■				(1)

(1) Indeterminate.

ISSUE 17

INADEQUATE OIL STORAGE FACILITIES WITHIN THE CATCHMENT LEAD TO SERIOUS OIL POLLUTIONS AFFECTING WATER QUALITY

BACKGROUND

Water quality within the Catchment is intermittently affected by localised pollution incidents. Many of these incidents are oil related.

Numerous industrial and agricultural sites within the Catchment have oil storage facilities which are not adequately bunded. Accidental spillage or leakage from such tanks and occasional acts of vandalism causes pollution and subsequently environmental damage

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Reduce incidence of oil pollution.	Continue programme of pollution prevention inspections to increase the general awareness of this problem.	NRA	ADAS (farm inspections)	■	■	■	■	■	■	2 p.a.
	New oil storage facilities to be adequately protected.	Facility owners.	NRA Planning Authorities	■	■	■	■	■	■	(1)

(1) Indeterminate.

6.3. ISSUES

ISSUE 18

LITTER ACCUMULATION OCCURS IN WATERCOURSES CLOSE TO URBAN AREAS.

BACKGROUND

In urban areas such as Boston and Sleaford, the general accumulation and dumping of litter along watercourses is visually and environmentally unacceptable. There is an added risk of flooding where such debris causes blockages of culverts and weed screens.

Responsibility for addressing this problem is not clear and may involve a number of bodies working together towards a solution.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To remove litter from specified high profile areas, and prevent specific litter being discarded.	To initiate Town/Parish/District Council litter clearance schemes.	Council	NRA	■	■	■	■	■		(1)
	Identify litter sources and persuade owners to change packaging.	District Council	NRA	■	■	■	■	■		(1)
To educate people - especially children, to 'take your litter home'.	Preparation of schools information pack.	NRA	County education officers	■	■	■	■	■		4

⁽¹⁾ Indeterminate.

6.3. ISSUES

ISSUE 19

LAND CONTAMINATED AS A RESULT OF PAST INDUSTRIAL PRACTICES CAUSES THE WATER QUALITY IN THE TOWNS DRAIN IN BOSTON TO FAIL THE EC DANGEROUS SUBSTANCES DIRECTIVE.

BACKGROUND

Water quality in the Towns Drain in Boston currently fails statutory Environmental Quality Standards for 'dieldrin' and 'gamma HCH' of the EC Dangerous Substance Directives (Dangerous Substance Directive 76/464/EEC). This has arisen due to the pollution of surface water from land contaminated with wood preservation chemicals. Extensive work is being carried out by the site operators to remedy the situation, this involves implementing a strategy of pollution minimisation, site clean up and surface water treatment.

The first full year for compliance assessment following the commissioning of the surface water treatment plant will be the year ending 1995. There have already been significant improvements in surface water quality.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Ensure compliance with consent standards.	Monitor discharge from site.	NRA/ Site owner		■	■	■	■	■	■	6 p.a.
Ensure compliance with Environmental Quality Standards.	Monitor Towns Drain.	NRA		■	■	■	■	■	■	6 p.a.
Establish whether contaminated sediments are resulting in the pollution of the watercourse.	Monitor discharge and Towns Drain.	NRA		■	■	■	■	■	■	(1)

(1) Indeterminate.

6.3. ISSUES

ISSUE 20

- A) THE NRA'S VIEWS ARE NOT ALWAYS ADEQUATELY REFLECTED IN PLANNING MATTERS.
- B) THE CUMULATIVE EFFECT OF PIECEMEAL DEVELOPMENT HAS AN ADVERSE EFFECT ON FLOOD DEFENCE, WATER QUALITY, AND CONSERVATION INTERESTS.

BACKGROUND

During the Planning Process the NRA, as a statutory consultee, comments upon development proposals and asks for its comments to be reflected in the planning decision. A lack of understanding by the Planning Authorities of NRA powers and by the NRA of Planning Authorities' planning criteria - occasionally leads to development proposals without appropriate constraints, placing the water environment at unnecessary risk.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To reduce the potential impact of development and change in land use upon the water environment	To increase NRA influence in the Town & Country planning process:									
	Contribute to formulation of National Planning Policy and Regional Guidance.	NRA	DOE LPA'S English Nature	■	■	■	■	■		(1)
	Negotiate the inclusion of NRA interests in LPA Development Plan policies and given specific regard to CMP issues.	NRA LPA'S	DOE LPA'S English Nature	■	■	■	■	■		(1)
	Agree the inclusion of NRA requirements in decisions on planning applications.	NRA LPA'S		■	■	■	■	■		(1)
	NRA to become proactive in its planning liaison activity and negotiating with developers	NRA		■	■	■	■	■		(1)

⁽¹⁾ Planning Liaison costs are internal/administrative costs

6.3. ISSUES

ISSUE 21

- A) THE BODY RESPONSIBLE FOR NAVIGATION FOR THE MAUD FOSTER AND WEST FEN CATCHWATER DRAINS IS UNCLEAR.
- B) THE UNCONTROLLED USE OF THE NAVIGATION COULD HAVE FLOOD DEFENCE AND WATER RESOURCE IMPLICATIONS

BACKGROUND

The NRA supports the increased recreational use of waterways provided that use is controlled and does not compromise other uses. Legislation defining which body is responsible for this "navigation" is unclear. Control needs to be exerted upon the navigation users to ensure boat movements from the River Witham during periods of low flow do not have an adverse effect upon water resources and to ensure boats are securely attended to or removed from the system during winter months when they could pose a problem during flood events.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Define the navigation responsibility in the Witham navigable drains.	Commission a historical assessment of navigation responsibility.	N.R.A. I.D.B.	I.W.A. B.W.B.				■			7
Establish the impact of navigation on flood defence and water resources in the Maud Foster.	Undertake study to assess potential boat usage and impacts on flood defence and water resources.	To be determined.	I.D.B. N.R.A. B.W.B. I.W.A.					■		5

ISSUE 22

BANK EROSION ON THE SOUTH FORTY FOOT DRAIN IS REDUCING IT'S STANDARD OF DEFENCE.

BACKGROUND

Bank protection in the form of revetment systems installed on both the South Forty Foot Drain and the Maud Foster are reaching the end of their effective lives. Progressive failure of the revetment is leading to bank slips and local erosion causing excessive siltation within the channel area. Where raised flood banks are subjected to erosion the risk of a complete bank failure and flooding is increased.

Actions relating to the Maud Foster are dealt with at Issue 14.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Ensure appropriate standards of flood defence are not compromised by bank erosion.	Carry out a rolling program of repairs on South Forty Foot Drain .	NRA		■	■	■	■	■	■	60 p.a.

6.3. ISSUES

ISSUE 23

THE RIVER WITHAM HAVEN CHANNEL IS SUFFERING FROM BANK EROSION.
THIS ISSUE HAS BEEN INCORPORATED INTO ISSUE 9

ISSUE 24

THE LACK OF FLOW INFORMATION ON THE RIVER WITHAM HAMPERS THE NRA'S ABILITY TO MANAGE RESIDUAL FLOWS TO TIDE AND SALINE INTRUSION IN BOTH THE WITHAM ITSELF AND WATERCOURSES IN THE EAST AND WEST FEN DRAINAGE SYSTEM.
THIS ISSUE HAS BEEN INCORPORATED INTO ISSUE 1

ISSUE 25

THE QUALITY OF WATERCOURSES IN THE CATCHMENT ARE ADVERSELY AFFECTED BY EUTROPHICATION.

BACKGROUND

Eutrophication arises as a consequence of the enrichment of water with nutrient from the surface water run-off from agricultural land and sewage treatment discharges, and the slow moving nature of watercourses in this Catchment.

Most lowland stretches within the Catchment are affected to some degree by nutrient enrichment from surface water run-off. As part of their guidance to the farming industry, and to combat the enrichment of both ground and surface waters with nutrients from agricultural sources, MAFF promote their "Code of Good Agricultural Practices". These give guidance on nitrate applications and are implemented through the designation of areas of land as both Nitrate Vulnerable Zones (NVZ) and Nitrate Sensitive Areas (NSA).

The Old River Slea/Kyme Eau, Frampton Towns Drain and the lower reaches of the River Witham are also affected by nutrient enrichment from sewage treatment works effluent discharges. Under the Urban Waste Water Treatment Directive watercourses can be designated as sensitive areas. This may place an obligation on the water undertaker to effect nutrient stripping at sewage treatment works. However, only waters receiving discharges from sewage treatment works for populations greater than 10,000 can be considered for such. In this Catchment, using this criteria only the River Witham and River Slea/Kyme Eau can be considered.

Eutrophication is a difficult problem to solve - there are no quick or immediate solutions.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To improve the quality of watercourses affected by eutrophication	To reduce nutrient run-off from agricultural land by promoting the Code of Good Agricultural Practice for the Protection of water.	NRA MAFF Farmers		■	■	■	■	■	■	(1)
	To evaluate the extent of eutrophication and the benefits derived from nutrient removal in sewage treatment works through utilising environmental information and impact modelling.	NRA		■	■	■	■	■	■	(2)

⁽¹⁾ The costs and benefits of changing farming practices may only be determined after operational experience of the various schemes designed to limit nitrate application. Compensation payments are available under the NSA scheme.

⁽²⁾ Indeterminate

6.3. ISSUES

ISSUE 26

THE IMPACT ON ABSTRACTORS AND THE LOCAL WATER ENVIRONMENT OF REDUCING FLOWS FROM WILD BOREHOLES IN THE SOUTH FORTY FOOT CATCHMENT IS UNKNOWN.

BACKGROUND

During the (1988 - 1992) drought, (taking advantage of the unusually low groundwater levels) the NRA carried out works to seal or control 30 wild boreholes across the Fen area of the South Forty Foot catchment. These boreholes had historically overflowed under artesian pressure from the limestone aquifer in an uncontrolled way (hence the term "wild") into local watercourses and ditches. Action was taken to seal/control the borehole flow in order to conserve the high quality groundwater resources of the limestone aquifer

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To ensure that abstractors and the local water environment are not adversely impacted by the sealing of wild boreholes.	Carry out desk study to assess the impact of sealing and control of wild boreholes on local abstractors.	NRA			■					5
	Carry out an environmental survey of local watercourses to assess the effects of sealing and controlling wild boreholes.	NRA			■	■				15
	Review provision of controlled flows from selected boreholes to meet local environmental needs.	NRA			■	■	■	■	■	(1)

(1) Internal administrative costs.

6.3. ISSUES

ISSUE 27

THE SLIPPERY GOWT LANDFILL SITE CAUSES INTERMITTENT POLLUTION OF LOCAL WATERCOURSES AND MAY HAVE OTHER ENVIRONMENTAL IMPLICATIONS.

BACKGROUND

Slippery Gowt Landfill was developed at a time when it was not considered necessary to contain leachates within landfill sites (Leachate is essentially rain water which permeates the site and becomes contaminated with waste products.). Historically it was accepted practice to allow diluted leachates to disperse slowly into the environment. There are now doubts as to the suitability of this method of leachate management.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Reduce volume of leachate generated in filled areas.	The operator is to recontour the site to improve it's surface water run-off, thus reducing the infiltration of rainfall.	Operator	WRA NRA	■	■	■				TBE
	A "low permeability engineered cap" is to be placed on filled areas of the site to reduce the infiltration of rainfall.	Operator	WRA NRA			■	■			TBE
	To evaluate the need for leachate to be extracted from the site.	Operator	WRA NRA	■	■					TBE
Ensure remainder of site is constructed and operated so that pollution risk is minimised.	Require operator to construct "engineered cells" with full Quality Assurance procedures.	WRA				■	■	■	■	(1)
	Ensure leachate is managed effectively.	Site Operator	WRA NRA	■	■	■	■	■	■	(2)
	Review of monitoring.	NRA				■	■	■	■	(1)

TBE To be evaluated.

(1) Internal administrative costs

(2) Indeterminate

6.3. ISSUES

ISSUE 28

THE STORM SEWER OVERFLOW AT LONDON ROAD PUMPING STATION IN BOSTON WHICH DISCHARGES TO THE HAVEN OPERATES AT AN UNACCEPTABLE FREQUENCY.

BACKGROUND

The sewage pumping station at London Road, Boston is not capable of pumping sufficient of the peak flow during times of storm. Consequently storm sewage is discharged via an overflow to the Witham Haven during relatively minor events.

It is likely that this problem reflects the combined nature of much of the Boston Sewerage System.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Reduce the frequency of operation of London Road Pumping Station.	Evaluate options for required improvements to sewerage system & Pumping Station and implement.	AWS	NRA						■	(1)
Bring about interim improvements in advance of full scheme completion.	Ensure there is adequate screening of sewage to prevent debris being discharged into the Haven.	AWS	NRA	■	■					TBE
Minimise the impact of future development on the problem.	Evaluate different methods of surface water disposal.	Developers	NRA LPA'S	■	■	■	■	■		(2)

(1) This work has been identified in Anglian Water's Asset Management Plan and is due to be completed by the year 2005.

(2) Indeterminate.

TBE To be evaluated.

ISSUE 29 NEW ISSUE

WATER QUALITY IN THE OLD RIVER SLEA FAILS TO ACHIEVE ITS LONG TERM RE TARGET.

BACKGROUND

Despite recent investment by Anglian Water Services, water quality of the Old River Slea is adversely affected by the discharge from Sleaford Sewage Treatment Works causing it to fail its Proposed Long Term RE Target (Class 4).

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To improve water quality in line with its proposed RE Class 4 Target.	Seek improvements to the quality of the Sleaford STW discharge through the provisions of Anglian Water's future Asset Management Plans in line with Regional priorities.	NRA	AWS	■	■	■	■	■		(1)

(1) Internal administrative costs.

6.3. ISSUES

ISSUE 30 NEW ISSUE

RECREATIONAL ACCESS TO THE WATER ENVIRONMENT IS RESTRICTED

BACKGROUND

Access points, public footpaths and bridleways are limited in the catchment. There is a need to encourage access to the countryside and to improve the rights of way network. Canoe access and egress around structures (for example on the river Slea) could be improved.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To improve the recreational use of the water environment.	Wherever feasible improve access for bankside and on-river recreation.	Landowners N.R.A. B.W.B. I.D.B. Local Authority. Ramblers Association British Canoe Union.				■	■	■		TBE

TBE To be evaluated

ISSUE 31 NEW ISSUE

BLACK SLUICE PUMPING STATION IS APPROACHING THE END OF ITS DESIGN LIFE.

BACKGROUND

The Black Sluice pumping station provides vital back-up pumping facility to evacuate waters draining from the high ground south of Sleaford and the low fen areas drained by the Black Sluice IDB. The station was constructed in 1946 and much of the plant is now obsolete.

The NRA is unsure of existing standards of flood protection in this sub-catchment area.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
Provide standards of defence consistent with land use.	Carry out a catchment study to assess standards of defence and the need or otherwise for improvement.	NRA MAFF	Black Sluice IDB					■		40
	Review the need to replace/refurbish Black Sluice pumping station.	NRA MAFF	Black Sluice IDB					■		1000
	Produce a strategy to address any shortfalls identified.	NRA MAFF	Black Sluice IDB					■		included above

6.3. ISSUES

ISSUE 32

MEMBERS OF THE PUBLIC ARE UNAWARE OF THE DANGERS ASSOCIATED WITH SWIMMING IN RIVERS.

BACKGROUND

During warm periods and school holidays reports have been received of children swimming in the river and jumping from structures into the river.

There are inherent dangers from weeds, underwater structures and undercurrents which can endanger even the strongest swimmers. There is also the risk of catching waterborne illnesses eg Weils disease.

OBJECTIVE	ACTION	RESPONSIBILITY		95/96	96/97	97/98	98/99	99/00	FUTURE	COST £K
		LEAD	OTHER							
To dissuade members of the public from swimming in local watercourses.	Publicise danger to the public.	NRA Local Authorities schools			■	■	■	■		(1)
	Erect signing to warn of dangers.	NRA Local Council			■	■	■	■		3

⁽¹⁾ Internal administrative/advertisement costs

7. SUMMARY OF COMMENTS - LOWER WITHAM CMP

ISSUE	ORGANISATION	COMMENTS
General	NFU	The proposals made by the NRA to resolve these issues should not prejudice existing flood defences or land drainage.
	LACA	The issues of eutrophication and inadequate local sewerage systems take precedence over others.
	L.C.C.	Greater emphasis should be placed on the creation of washlands to increase the bio-diversity of the catchment.
	BCU	The report does not adequately reflect the important use of the catchments watercourses by canoeists.
	WPC	The NRA should concentrate its resources upon providing appropriate flood defences rather than on conservation issues.
	BBC	Is there any contradiction between the LW CMP and the Lincs State of the Envir Report viz: deteriorating water quality, high nitrate levels, marine water quality, depleted mussel beds, sewage disposal on land.(There is no contradiction between these documents)
	EN	The Plan has not addressed issues associated with the Wash. The report should document the impact of the Witham's nutrient loading on the Wash.(To be considered in the Wash CMP - 1997)
	C Panel	Can use be made of LCC's Green Bus to make the public more aware of these issues.
	MAFF	The report fails to address fishing issues (NB such issues will be addressed in the forthcoming Wash Estuary CMP).
	MAFF	The NVZ's have not been designated but are proposed.
	AWS Para 2	There may be individual areas of growth in demand for water in the catchment; however, these should be offset by savings made through leak detection.
ISSUE 1	BS/IDB	The possibility of increasing the residual flows in the South Forty Foot should be considered.
	BWB	Care should be taken to ensure any transfer of water via TWA does not impact on river channel or on navigational structures.
	LACA	Should we consider accepting increased levels of salinity to produce a more natural river habitat.
ISSUE 2	LACA	The Lincolnshire Anglers Consultative Association are uneasy regarding the use of tyre reefs.
ISSUE 3	RSPB	No reference has been made to the "Wet Fens for the Future" project which could have implications for this catchment.
	WPC	Conservation interests should identify those areas where a return to a "more natural" state is feasible.
ISSUE 4	BS/IDB	NRA should consider reducing its rents to increase the grazing of embanked watercourses.
	LACA	If major watercourses such as the Thames and Ouse can exist with trees along their banks - why can't those in this catchment.
	LACA	Can artificial otter holts and nest holes for ospreys be provided to improve/encourage the catchment's fauna.
ISSUE 5	LACA	The restoration of the River Slea navigation has too many constraints and is unrealistic.
	BCU	If these proposals are carried out it is important that adequate facilities for access and egress by canoeists are provided around any structures.
	LCC/NKDC	Offers support to the restoration of the Slea navigation whilst accepting the need to balance the various interests.
	BWB	What are the existing navigational rights along the R.Slea.
ISSUE 6	AWS	Option 2 add NRA to list of those responsible.
	NKDC	Notes the success of the current augmentation scheme.
ISSUE 7	SIB	Not in favour of the option to undertake further dredging works.
ISSUE 8	RSPB	Concern expressed over proposals relating to the proposed sea lock development in terms of cost and discharge ability from IDB drains.
ISSUE 9	RSPB	Concern expressed that the current feasibility study to consider the implications of constructing a sea lock at Boston has not given sufficient weight to environmental concerns.
	RSPB	Option. Add additional disadvantage of adverse environmental impact upon the wash SSSI/SPA/Ramsar site.
ISSUE 10	NFU	The 50 mg/litre standard is not based on scientific evidence.
	AWS	The issue of nitrates in groundwater is not one which will be quickly solved.

7. SUMMARY OF COMMENTS - LOWER WITHAM CMP

ISSUE	ORGANISATION	COMMENTS
ISSUE 11	BS/IDB	The NRA should not consider managed retreat in this area.
	RSPB	The development of a flood defence strategy needs to consider the impact of "coastal squeeze" upon conservation area.
	LCC	Accepting a reduced standard of flood protection is not acceptable - full improvements must be maintained.
ISSUE 12	BWB	Any flood defence improvement works to the banks of the River Witham should consider the impact on the navigation and might offer opportunities in terms of providing moorings.
	BWB	Occasional problems have arisen for boat owners because of inadequate depth of water for craft.
ISSUE 13	BS/IDB	It would be inappropriate to "enmain" rivers or to enlarge IDB areas.
	NFU	It is not acceptable to "accept the existing standard of defence" as an option.
ISSUE 14	MRC	No mention has been made in the report of proposals for a washland to alleviate flooding in the West Fen Catchwater System.
ISSUE 15	BBC	Should we look at the option of bio-digester systems.
ISSUE 16	AWS	Anglian Water now has a scheme to extend the high street sewer next year.
	WPC	Could the individual properties have "Bio-Units" installed.
ISSUE 17	NFU	Small cumulative oil drips and waste oil from engine changes contribute to this problem.
	MAFF	Option 1 add MAFF/ADA to the list "responsibility".
	BBC	Issue to be extended to include all hazardous substances.
ISSUE 18	BS/IDB	IDB's should be included in any initiative to address this litter problem.
	SIB	The litter problem is not confined solely to urban areas.
	BBC	Litter adversely impacts on the recreational use of the Maud Foster Drain.
ISSUE 20	LACA	Recognises the importance to the NRA of its long term planning if it is to protect the water environment.
	RS	Need to evaluate how effective our current practises are.
ISSUE 23	BWB	Where appropriate those who contribute to this problem - boat owners - should also pay for remedial works.
ISSUE 25	AWS	It is not certain that the removal of phosphates from STW discharges will completely solve the problems associated with eutrophication in these water courses.
ISSUE 26	AWS	Additional Option: NRA to survey for additional wild boreholes during periods of high artesian pressures.
	BS/IDB	The Water should be provided to the South Forty Foot to meet the demand for spray irrigation - options a) use of groundwater from boreholes b) transfers from the Rivers Glen and/or Witham.
ISSUE 28	AWS	Improvements to the sewerage infrastructure are scheduled for completion during 1996. These will be monitored to determine if further improvements are necessary.
POSSIBLE NEW ISSUES	BWB	Does the River Witham fail its WQO (Page 65).
	JU	The long term effectiveness of the Black Sluice PS to evacuate flood waters is in doubt.
	BWB	The lack of access to certain locations along the River Witham restricts its recreational use.
	BBC	The recreational use of river banks is under-utilised, BBC is keen to promote joint initiatives. Access to river and sea banks need to be safeguarded/improved.
	BBC	Is salt water seeping into drains adjacent to tidal defences a problem.
	BBC	The standard of tidal defences at Wrangle appears poor.
	BWB	Problems are regularly experienced in the River Witham with swimming.
	BWB	Increased recreational use of the navigation could be made by extending its period of opening currently April to October.

8. AMENDMENTS AND ADDENDA TO CONSULTATION DOCUMENT

PAGE No./ISSUE	ORGANISATION	COMMENTS
OVERVIEW	AWS	Addendum to overview. "Improvement of the water environment is a major objective in the Lower Witham catchment and a key event in 1994 was the announcement of Anglian Water's investment programme (AMP2). Part of the AMP2 procedure included the development of a jointly agreed Environmental Quality Enhancement Programme (EQEP) with AWS, with the intention of developing a programme of improvements designed to give the greatest environmental cost benefit. This will result in major capital expenditure in the catchment during 1995-2015, and particularly during the first five years of this period, although in some cases money allocated to ensure compliance with EC Directives may not be sufficient to upgrade watercourse quality as identified in the Action Plan."
PAGE 5	MAFF	Addendum "one of MAFF's aims is to balance the interests of agriculture with the conservation of the countryside"
	MAFF	Amendment "Countryside Commission have an important role in the conservation of landscape".
PAGE 27	AWS	Amendment to final sentence para 1: "For those sites closed prior to 1992 the surrender of an operators licence is only permissible when the site no longer proves a risk to pollution".
PAGE 28	AWS	Para 2 - delete final sentence (NB Issue 27).
	BCU	Amendment to Para 1 replace final sentence with "The NRA welcomes initiatives which increase the recreational use of the water environment and is conscious of the need to achieve an equitable balance between its many uses and users".
PAGE 35	MAFF	Amendment to Para 2: "MAFF promote a package of measures which aims to encourage farmers to undertake a range of positive steps designed to conserve and enhance the rural environment and its natural resources, including the water environment. These include the Habitat scheme; Countryside Stewardship (taken over from Countryside Commission from April 1996); the Code of Good Agricultural Practice for the Protection of Water; and the funding of ADAS to carry out farm visits to advise on the storage and disposal of potentially polluting materials. In addition, parts of the catchment have been proposed as a Nitrate Vulnerable Zone (NVZ) and contains a Nitrate Sensitive Area (NSA)".
PAGE 43	MAFF	Amendment: The Government encourages farmers to combine their commercial farming practices with conservation awareness. The Countryside Stewardship Scheme, for example, which is currently run by the Countryside Commission but will transfer to MAFF in April 1996, allows farmers financial compensation for returning land to a more natural state. This has obvious environmental benefits and, in some instances, flood defence benefits for the NRA.
PAGE 57/65	AWS	Addendum to Para 5. Both Frampton and Sleaford STW are fully compliant with their legal consents.
Page 65	NRA	Ammendment to Para 5 - penultimate sentence: delete "conservative" and replace with "short term".
MAP 11,13	MAFF	Map Amendment: Whereas the entire wash is a Ramsar/Spa site the extent of the SSSI is limited to the foreshore.
ISSUE 3	MAFF	Amendment: Responsibility for Option 1 add "MAFF" delete "Fisheries" and replace with Farming. Delete Countryside Commission.
ISSUE 4	MAFF	Amendment: Responsibility for Option 2 should read "MAFF/Landowners/NRA/Farming and Wildlife Advisory Group".
ISSUE 25	MAFF	Amendment: Responsibility for Option 2 should read "MAFF/Landowners/NRA/Farming and Wildlife Advisory Group".
GLOSS	MAFF	Amendment to the definition of NVZ's and NSA's. "Land in areas where water sources exceed a 50mg/l nitrate limit or are forecast to by the year 2010 are to be designated NVZs. Farmers will be required to observe an action programme to reduce nitrate loss from their land. There is not compensation for programmes within NVZs. In addition, certain parts of NVZs are designated as NSAs where farmers are invited to take additional measures for which they will be compensated.

7. FUTURE REVIEW AND MONITORING

The NRA will be jointly responsible, with other identified organisations and individuals for implementing this Action Plan. Progress will be monitored and reported annually to the Lincolnshire Catchment Panel, to those who responded to the Consultation Document, to Action Plan “partners”, to local authorities and to other individuals and groups.

The reviews will examine the need to update the CMP in the light of changes within the Catchment and feedback from interested parties. Annual Reviews will take the form of a short progress report for all issues to include work achieved compared to that planned, to highlight any changes to the Plan. The period between major revisions will normally be five years.

KEY TO ABBREVIATIONS

NFU	National Farmers Union
BS/IDB	Black Sluice Internal Drainage Board
LACA	Lincolnshire Anglers Consultative Committee
BWB	British Waterways
LCC	Lincolnshire County Council
RSPB	Royal Society for the Protection of Birds
BCV	British Canoe Union
NKDC	North Kesteven District Council
WPC	Wildmore Parish Council
AWS	Anglian Water Services
BBC	Boston Borough Council
SIB	Sibsey Parish Council
EN	English Nature
MRC	Mr Camfield
C. Panel	Lincolnshire Catchment Panel
MRS	Mr Spaight



HEAD OFFICE

Rivers House
Waterside Drive
Aztec West
Almondsbury
Bristol BS12 4UD
Tel: (01454) 624400
Fax: (01454) 624409

ANGLIAN

Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: (01733) 371811
Fax: (01733) 231840

NORTHUMBRIA & YORKSHIRE

21 Park Square South
Leeds LS1 2QG
Tel: (0113) 2440191
Fax: (0113) 2461889

NORTH WEST

Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: (01925) 653999
Fax: (01925) 415961

SEVERN TRENT

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

SOUTHERN

Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: (01903) 820692
Fax: (01903) 821832

SOUTH WESTERN

Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: (01392) 444000
Fax: (01392) 444238

THAMES

Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: (01734) 535000
Fax: (01734) 500388

WELSH

Rivers House/Plas-yr-Afon
St. Mellons Business Park
St. Mellons
Cardiff CF3 0LT
Tel: (01222) 770088
Fax: (01222) 798555

The National Rivers Authority will form the major part of a new organisation which will have responsibilities for the environmental protection of water, land and air. The new Environment Agency starts its work of managing the environment in England and Wales on 1 April 1996.



The National Rivers Authority

Guardians of the Water Environment

The National Rivers Authority is responsible for a wide range of regulatory and statutory duties connected with the water environment.

Created in 1989 under the Water Act it comprises a national policy body coordinating the activities of 8 regional groups.

The main functions of the NRA are:

- | | |
|--|--|
| <i>Water resources</i> | — The planning of resources to meet the water needs of the country; licensing companies, organisations and individuals to abstract water; and monitoring the licences. |
| <i>Environmental quality and Pollution Control</i> | — maintaining and improving water quality in rivers, estuaries and coastal seas; granting consents for discharges to the water environment; monitoring water quality; pollution control. |
| <i>Flood defence</i> | — the general supervision of flood defences; the carrying out of works on main rivers; sea defences. |
| <i>Fisheries</i> | — the maintenance, improvement and development of fisheries in inland waters including licensing, re-stocking and enforcement functions. |
| <i>Conservation</i> | — furthering the conservation of the water environment and protecting its amenity. |
| <i>Navigation and Recreation</i> | — navigation responsibilities in three regions — Anglian, Southern and Thames and the provision and maintenance of recreational facilities on rivers and waters under its control. |



Published by the Public Relations Department of the National Rivers Authority, Anglian Region, Kingfisher House, Orton Goldhay, Peterborough PE2 5ZR. Telephone (01733) 371811.

Printed on totally chlorine free paper.



1140/1/96
A-1/96-2K-E-ARSF