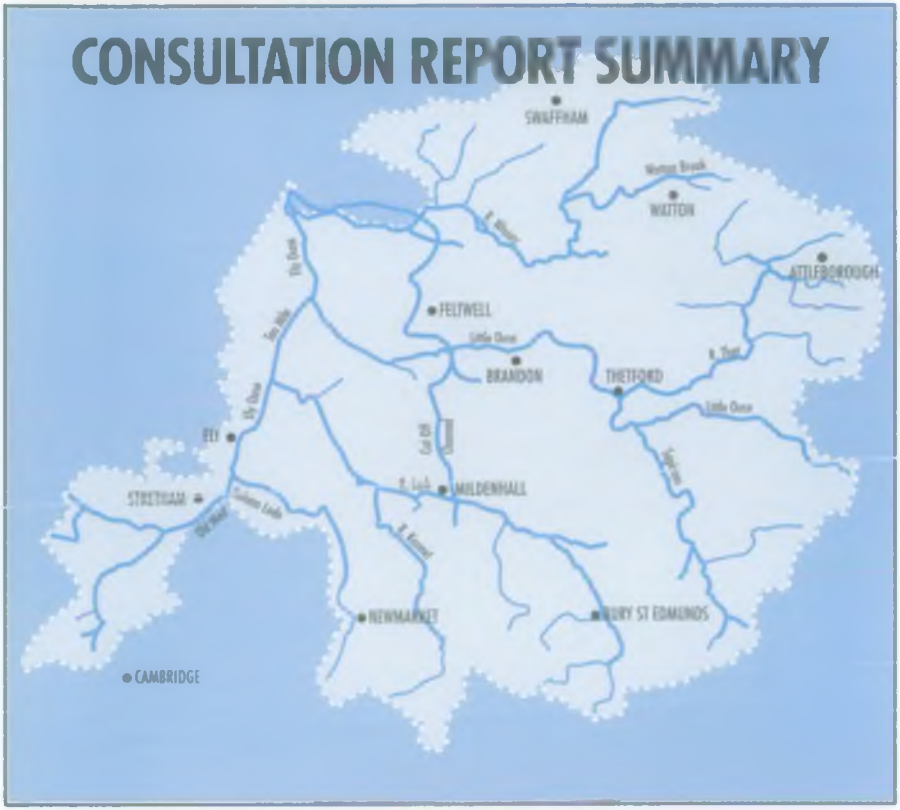
ELY OUSE CATCHMENT MANAGEMENT PLAN

CONSULTATION REPORT SUMMARY



NRA

National Rivers Authority
Anglian Region

INTRODUCTION

Catchment management planning aims to create a consistent framework within which all the NRA's functions and responsibilities can be applied in a co-ordinated manner within a particular catchment area.

The current state of the water environment and associated land is systematically analysed and compared with appropriate standards. Where these standards are not being met or are likely to be affected in the future, the shortfalls, together with options for action to resolve them, are presented as issues in a table at the end of this brochure.

YOUR VIEWS

Formulation of this plan involves consulting and working with many public bodies and individuals. Your views on the issues identified are welcomed. You may also wish to comment on other matters affecting the water environment in the catchment area which you think should be examined by the NRA.

Please write with your comments to the following address, from which a full copy of the consultation report may also be obtained:-

Ely Ouse Catchment Management Plan, Area General Manager
National Rivers Authority, Central Area, Bromholme Lane, Brampton, Huntingdon, Cambs, PE18 8NE

Comments must be received by 25th June 1993

Aerial view of the Denver system.

EA - Anglian LEAPs

WHAT IS CATCHMENT PLANNING?

River catchments are subject to increasing use by a wide variety of activities, many of which interact giving rise to some conflicts. The many competing demands on the water environment and the interests of users and beneficiaries must be balanced.

Catchment management involves the NRA in working with many people and organisations and in using its authority to ensure rivers, lakes, coastal and underground waters are protected, and where possible improved, for the benefit of present and future users.

The NRA uses its resources to:

- Respond promptly to all reported pollution incidents and to emergencies due to flooding.
- Control pollution by working with dischargers to achieve improvements and monitor effluent compliance with standards.
- Maintain existing assets and invest in new ones to provide flood protection, manage and develop water resources and provide other NRA services.
- Monitor, survey and investigate the existing quality of controlled waters to determine short and long term changes.
- Determine, police, enforce and review conditions of water abstraction licences, discharge consents and flood defence consents in order to achieve operational objectives.
- Develop fisheries; promote recreation, navigation and conservation.

Confluence of the River Ouse and Lark.

CATCHMENT FACTS

Area 2510 km^2
Population Existing 272,000 Projection (2006) 309,450

WATER QUALITY

Length of river in National Water Council Class - 1991 Survey

Class 1A (very good)	40.6 km	Class 3 (poor)	72.2 km
Class 1B (good)	218.6 km	Class 4 (bad)	0 km
Class 2 (fair)	94.1 km		

(Note: Minor tributaries not included)

WATER RESOURCES

Availability: Chalk aquifer - limited
Lower Greensand - none
Surface Water - winter only except from supported watercourses

FLOOD PROTECTION

Length of statutory main river (watercourses maintained by NRA):	407.3 km
Length of embanked main river:	161.0 km
Area of natural flood plain:	71 km^2

NAVIGATION

Length of recreational waterway navigation: 103.3 km

FISHERIES (monitored by NRA)

Length of game (trout) fishery: 106 km
Length of coarse fishery: 227 km

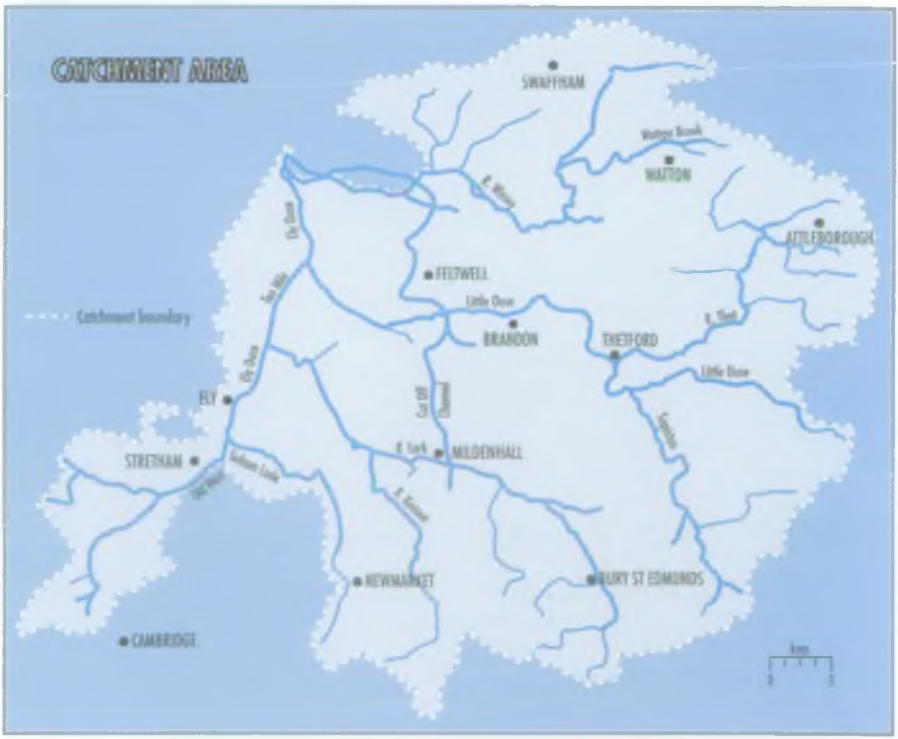
CONSERVATION

Number of Sites of Special Scientific Interest (SSSIs): 78
Number of water dependent SSSIs: 39

THE CATCHMENT

The Ely Ouse Catchment comprises of a combination of seventeen sub-catchments which reflect the diverse topography within the area.

Tributaries flowing into the Ely Ouse include the Wissey, Little Ouse and Lark. River levels are controlled by the Denver Sluices. The area is characterised as a lowland river catchment in which the upland areas, 72% of the total, are drained by natural rivers and streams. For centuries the lowland drainage systems have been modified by man to provide flood protection for land up to 7 metres below normal high tide. River levels throughout the lowland area of the catchment are controlled by the Denver Sluices.



The maximum elevation, found in the chalk outcrop south of Newmarket, is approximately 125 metres above sea level while much of the fenland is at or below sea level.

Surface geology varies from boulder clay on chalk in the east of the catchment, chalk outcrop in the central area and clay with some greensand outcrops and fen deposits in the west.

Just under half the 2510 square km area lies within the county of Suffolk with approximately the same proportion in Norfolk and a small area in Cambridgeshire.

LAND USE

Arable farming is the dominant land use in the Ely Ouse catchment. Land quality varies from Grades I to IV under the MAFF classification, with almost 50% being Grade III. Woodland accounts for 7% of the area.

The Catchment population is 272,000. Of this, 129,500 is in Suffolk, 76,250 in Norfolk and 66,250 in Cambridgeshire. Urban areas account for only 1% of the area. In both Suffolk and Norfolk 50% of the counties's population are centred in towns such as Bury St Edmunds, Newmarket, Mildenhall, Thetford, Attleborough, Swaffham and Watton.

The population of Cambridgeshire is more evenly distributed; Ely is the main settlement within the river catchment, having 12,060 people.

View of the fens, Ely.

There are several major military installations, notably at Mildenhall, Lakenheath and Feltwell and army battle training areas are also found within the catchment.

Industry is very varied throughout the catchment and is generally located at the major settlements in designated industrial areas.

INFRASTRUCTURE

All major centres of population are linked by passenger-based rail services.

Two major roads, the A11(T) and the A45(T), cross the area of the catchment. The catchment towns are served by a network of roads all of which carry a large proportion of freight traffic.

DEVELOPMENT

Structure Plans for the three counties recognise the need for development to meet the requirements of a population increase estimated at 309,450 by the year 2006. This increase will affect both housing and employment.

In Norfolk, Thetford is regarded as the main residential and commercial growth centre. Major development in Suffolk will be concentrated in Bury St Edmunds and Mildenhall while 1,500 new dwellings plus increased employment is proposed for the Red Lodge New Settlement.

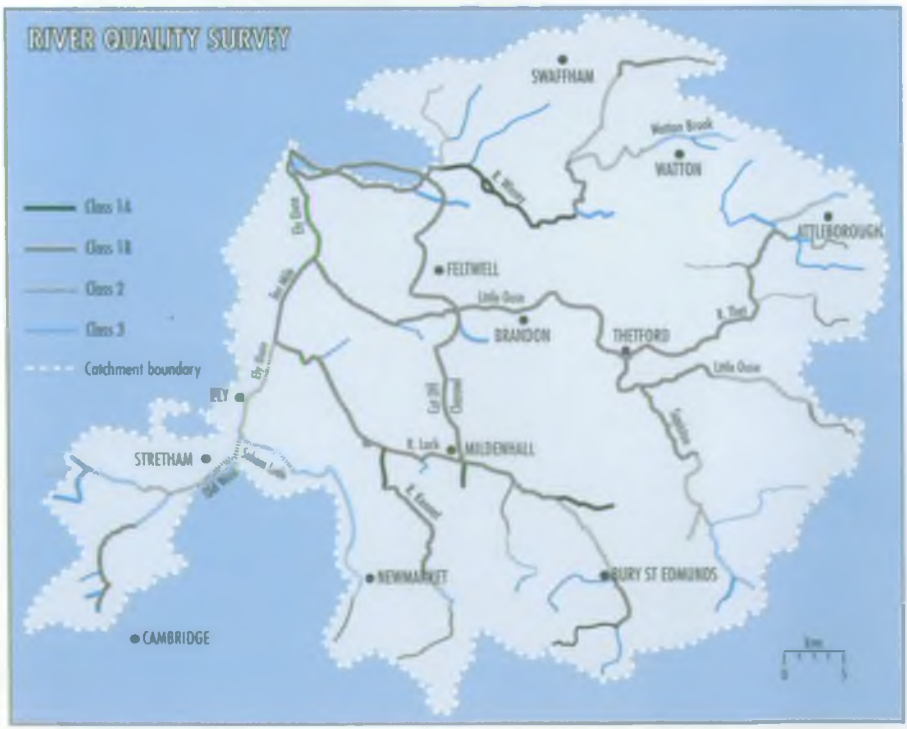
Urban development.

Major commercial development in Cambridgeshire will centre around Ely with industrial expansion at Witchford and Sutton. Several other towns should experience limited development. At Kennet 1,650 new dwellings are proposed and a sub-regional shopping centre is planned near Bar Hill.

Biological sampling.

WATER QUALITY

Most of the catchment rivers are classed as good or very good in quality. Only recently, due to the drought of 1989-1992, have there been any significant lengths of poor quality watercourse.



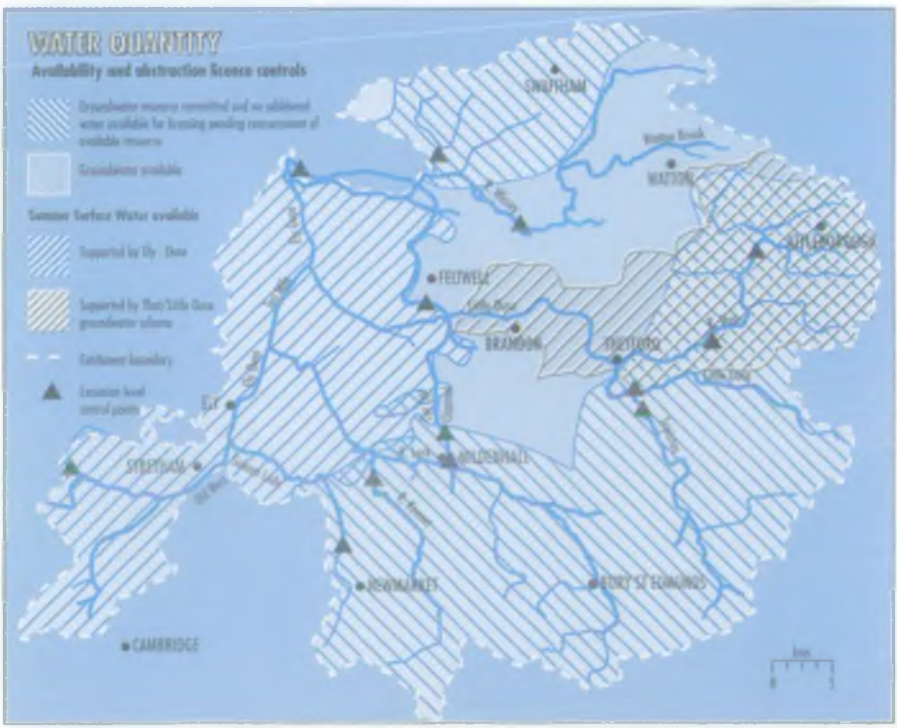
With agriculture the dominant industry, a threat to water quality is always present, from short term pollutants such as slurry to nitrate and pesticides which pose long term problems.

WATER RESOURCES

Availability of water resources from both groundwater and surface is limited. Following the drought conditions of 1989-1992 the NRA introduced a moratorium on all additional abstractions of groundwater in the chalk aquifer areas of the catchment where resources are limited. Surface water is available in winter during periods of high flow. In summer when crop irrigation takes place, surface water availability is limited.

In the catchment Anglian Water Services is the major abstractor for public water supply. In addition, 420 licences for general agricultural abstraction and 50 licenses for industrial abstraction are in effect.

Water abstractions for public water supply, industry, agriculture and private use are controlled by licences, and it is becoming common practice to include conditions that stop abstraction during low flow conditions or low ground water levels in order to protect the environment and the rights of existing users.



FLOOD PROTECTION

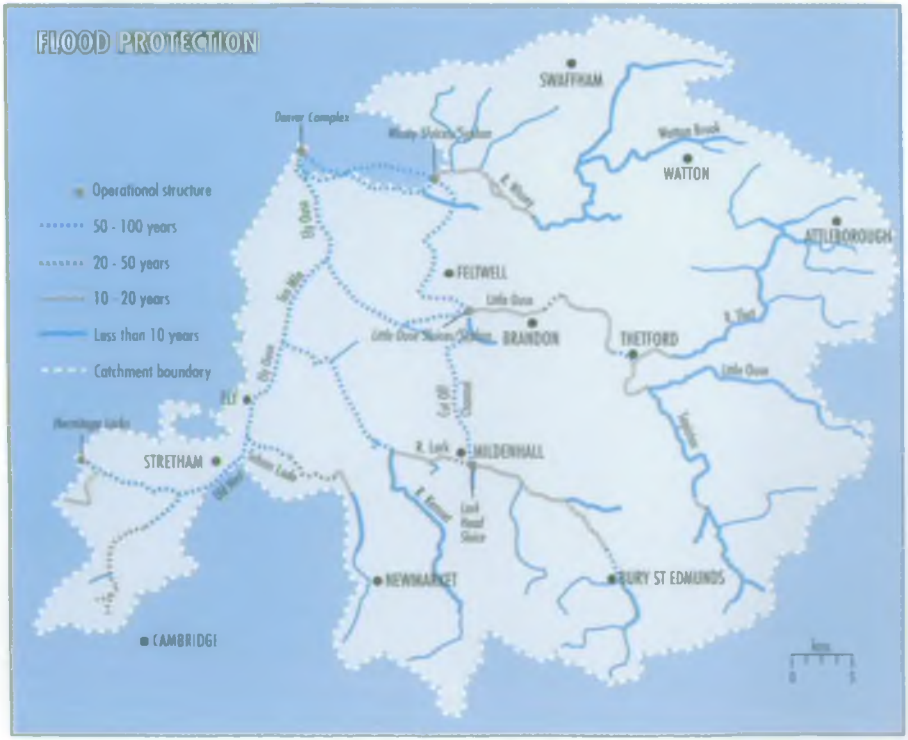
The Ely Ouse catchment consists of a low-lying fenland basin, the South level, in the west, with higher ground in the east.

In the northwest corner of the area Denver Sluices control all the flows from the catchment as well as controlling the retention level in the South Level section.

Under Section 105 of the Water Resources Act 1991, the NRA has powers to exercise a general supervision over flood defence and land drainage.

Following the 1947 floods, a major protection scheme was undertaken during the 1960s. This included building the Flood Relief Channel and Cut-off Channel. The NRA provides river information and advice to County Police Forces and other Emergency Services, giving advance warning of areas susceptible to either tidal or fluvial flooding.

Flood protection schemes and maintenance work are always carried out in ways sensitive to the environment.



FISHERIES

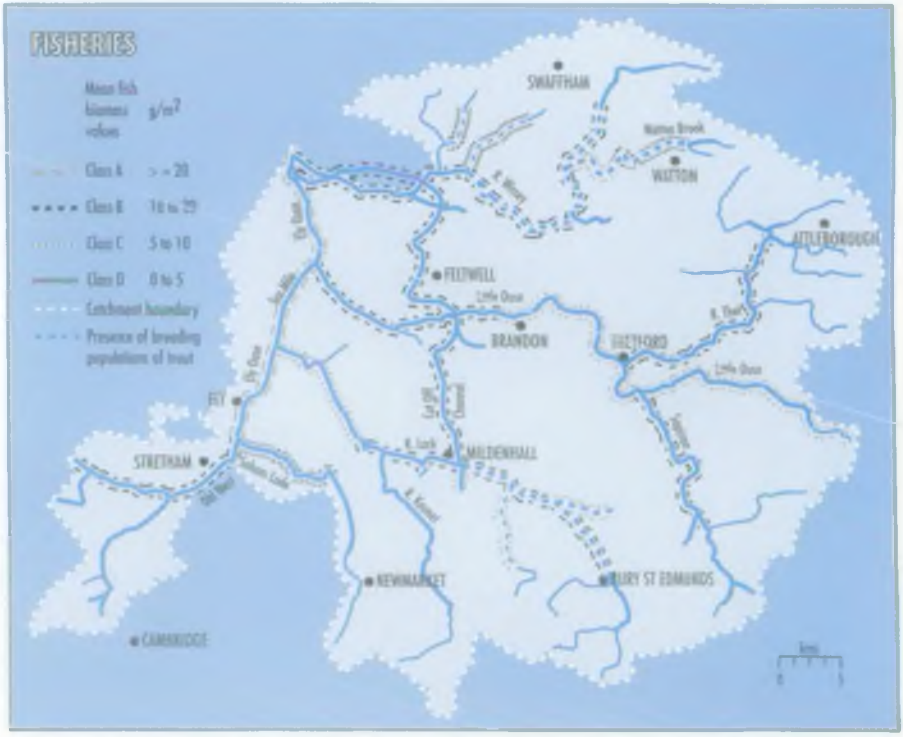
The Ely Ouse River is a major coarse fishery and supports a Class A fish population, as does the Lower Lark is The Lower Wissey and Little Ouse both support a Class B population.

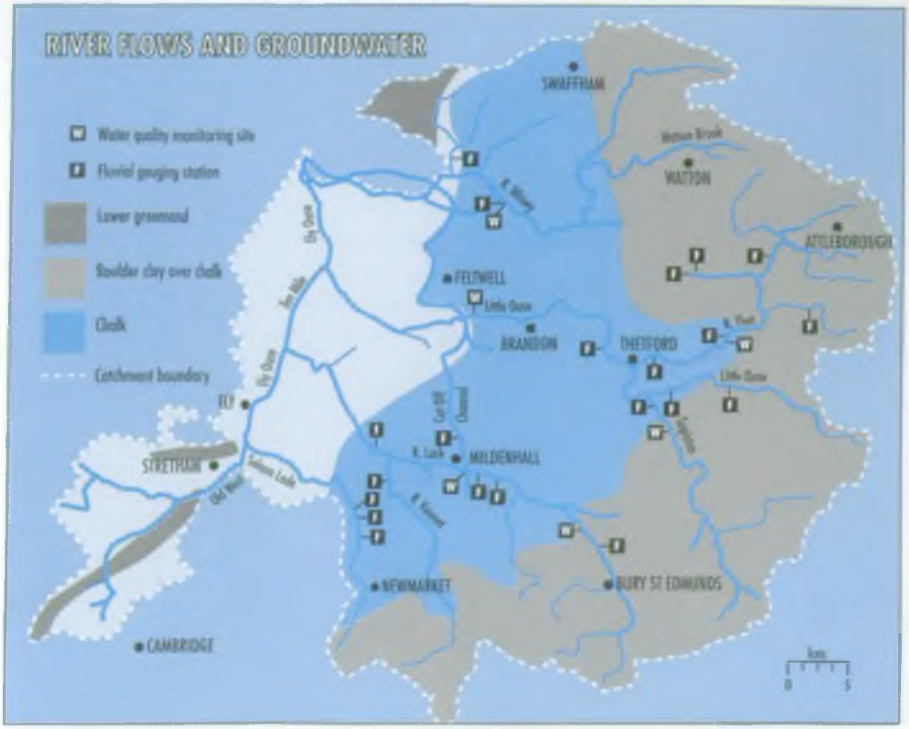
In the upstream sections of the Ely Ouse main tributaries there is a gradual change in species, to those more suitesd to the erosive riffle/pool habitat. The River Wissey supports a breeding brown trout population. Dominant fish in the Little Ouse catchment are roach, dace, chub and pike.

Coarse fishing on the River Ely Ouse.

The Ely Ouse has been the location for the national angling championships; an event which is scheduled again for 1995.

Commercial eel fishing, a seasonal activity between April and October, is principally confined to the lowland fen sections of the river.





Navigation on the River Ely Ouse.

NAVIGATION

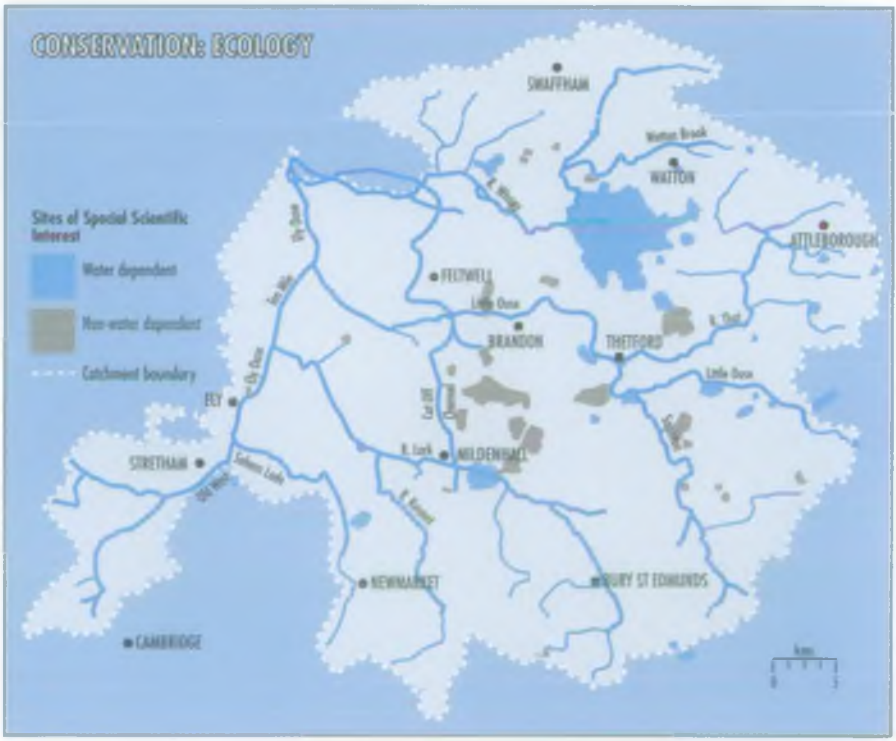
Several lengths of river are defined as recreational waterways for which the NRA is the Navigation Authority.

The Old West River links navigation on the Bedford Ouse River to the Ely Ouse River, giving access to the River Cam to the south, and to the tidal section of the Great Ouse River and the Wash through Denver Lock to the north. The NRA is The Navigation Authority for the Old West and Ely Ouse Rivers, and for the River Little Ouse up to Brandon Staunch, the River Lark up to Judes ferry and the River Wissey up to a mile upstream of Stoke Ferry Bridge.

CONSERVATION

A distinct diversity in the landscape gives the Ely Ouse area a special value in its ecological variety and conservation value. There are 78 SSSI sites within the catchment, 39 of which are water dependent. In addition there are many County Trust sites of nature conservation importance.

The largest SSSI is the MOD-owned Stanford Training Area. Covering 4,597



hectares it is the last remaining extensive area of Breckland grassland and heath, also including areas of wetlands, springs, streams and standing water.
The Brecklands, a designated Environmentally Sensitive Area (ESA), is situated on the eastern edge of the fen. The subject of a recent study, the Brecklands contains a number of important sites for nature conservation and is rich in sites of archaeological importance, having 177 Scheduled Ancient Monument sites (SAMs).

A typical wetland.

Within the catchment there are a total of 295 SAMs.

RECREATION

Tourism, much of which is linked to the water environment, is promoted by all the local authorities in the area.
The many historical and archaeological sites attract visitors and as well as sites managed by English Heritage and the National Trust, there are three main Country Parks with recreational facilities. At the Denver Complex the NRA offers talks and provides relevant literature.

Some river banks are accessible for walking and enjoying the flora and fauna of this area while bridleways are provided for horse riding.

Numerous sites have facilities for caravanning and camping.

A multiplicity of bridges on the catchment's rivers to some extent restricts sailing but navigable watercourses are used extensively by motor powered craft.

Canoe facilities are available on the Little Ouse at Santon Downham and informal use occurs at other locations. Rowing is popular in the Ely area where Kings School has a boathouse. The local river is used by the Cambridge University Boat Race team for training.

Special restrictions prevent water skiing or jet skiing.

ISSUES AND OPTIONS

GENERAL

This section of the plan considers options to address the issues that have been raised in the preceding sections. The options as presented are the initial thoughts of the Anglian Region of the NRA and do not constitute policy statements. Comments on the issues and options are requested together with any new ideas/suggestions.

Wherever possible the body responsible for carrying out each option has been identified. In some areas this is identified as someone other than the NRA. However, the options as presented are intended as a plan to facilitate improvements to the water environment for the benefit of all users. Obviously this will entail many bodies and individuals working together to fulfil the aims and objectives as detailed in this Catchment Management Plan.

The issues and options are not shown in priority order, not costed and to any timescale. After publication of this Consultation Document, the NRA will prepare an Action Plan to provide an overview of the catchment, a policy framework and series of strategies to deal with the issues. Details of a proposed monitoring programme will also be identified.

Attractive riverside walks.

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 1. COTTENHAM LODE FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 3	Further improvements to Cottenham STW for effluent discharge to Cottenham Lode
ISSUE No. 2. SOHAM LODE FAILURE TO MEET FISHERIES ECOSYSTEM CLASS 3	River Support via borehole Regulation of IDB abstractions to reduce quantity abstracted Revocation of 1 licences within IDB area Revocation of groundwater abstraction licences elsewhere in catchment Increase winter storage Improve effluent quality from Soham and Newmarket STWs
ISSUE No. 3 RIVER LARK FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 3/2 FROM BURY ST. EDMUNDS TO MILDENHALL	Improvements to Bury St Edmunds STW Revocation of groundwater abstraction licences River support scheme from outside the catchment Control polluting run- off from Bury St Edmund

ABBREVIATIONS USED

AWS Anglian Water Services Ltd.

IOB Internal Drainage Board

STW Sewage Treatment Works

PWS Public Water Supply

SSSI Special Site of Scientific Interest

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA/AWS	Restore to NWC Class 2 and F2 Fishery	Potential Cost to AWS
NRA	Prevents river drying up	Only partial solution.Increased abstraction from groundwater
NRA/IDB	Maintains flow and level	Restriction of existing licence holders in IDB Areas
NRA	As above	As above. Cost of licence revocation
NRA	Assist in restoration of baseflow Improvement in river ecology	Cost of licence revocation
NRA/Licence Holders	Better use of water resources More reliable water supply in summer Potential to create conservation habitat Potential for development to commercial fishery	Cost to licence holders
NRA/AWS	Improved quality of receiving watercourse	Potential cost to AWS
NRA/AWS	Improved quality of discharge to receiving watercourse	Cost to AWS
NRA	Improved river flows. Benefit to ecology	Cost
NRA	Increased river flows	Cost of transfers. Possible ecological harm from imported water
NRA/AWS	Improved quality of discharges	Very high manpower cost to investigate

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 4. RIVER KENNETT FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 2	Review consent and improve Gazeley STW River support Revoke groundwater abstraction licences
ISSUE No. 5. CAVENHAM STREAM FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 4	Review discharge consent at Barrow STW Revocation of surface and groundwater abstraction licences River support
ISSUE No. 6. LITTLE OUSE FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 4IN BOTESDALE TO BLO NORTON FORD STRETCH	More investigative work to identify actual caus
ISSUE No. 7. RIVER SAPISTON FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 4	Improve Elmswell STW Improve Farm Kitchen Foods effluent quality
ISSUE No. 8. STOWLANGTOFT STREAM FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 3	Undertake exhaustive investigations and pollution prevention
ISSUE No. 9. RIVER THET FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 3	Continue enforcement action if appropriate

	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
	NRA/AWS	Improve quality of receiving watercourse	Cost to AWS
	NRA	Prevents river drying up	Only partial solution
	NRA	Improved river flows Benefit to ecology	Cost
	NRA	Improved quality of discharge to receiving watercourse	Cost to AWS
	NRA	Improved river flows	Cost to NRA
	NRA	Prevents river drying up	Only partial solution
	NRA	More study will allow further action or revised classification	Investigations have already been undertaken without concrete results
	AWS	Improved quality of discharge to receiving watercourse	Cost to AWS
	Farm Kitchen Foods	Improved quality of discharge to receiving watercourse	Cost to AWS
	NRA	Improved river quality	Cost to NRA
	NRA	Improved river quality	Cost to NRA

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 10. RIVER WISSEY FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 3	Improve British Sugar Factory effluent Improve Swaffham STW
ISSUE No. 11. WATTON BROOK FAILURE TO ACHIEVE FISHERIES ECOSYSTEM CLASS 3	Improve Watton STW (Watton Ex-RAF to close) Control polluting run- off
ISSUE No. 12. UNSEWERED VILLAGES WHERE SEPTIC TANK DISCHARGE TO WATERCOURSES EG KENNINGHALL AND CARBROOKE	Installation of first time rural sewage scheme Renew soakaway systems
ISSUE No. 13. QUALITY PROBLEMS IN GROUNDWATER GROUNDWATER CONTAMINATION BY NITRATES	For public water supply, blend or treat before supply For private supply, connect to mains Reduce agricultural application of nitrates
ISSUE No. 13ii). GROUNDWATER CONTAMINATION BY SOLVENTS	Stop disposal into/onto land Undertake investigative studies and take appropriate action and enforce legislation

	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
	British Sugar	Improved quality of discharge to receiving watercourse	Cost to British Sugar
	AWS	Improved quality of discharge to receiving watercourse	Cost to AWS
	AWS	Improved quality of discharge to receiving watercourse	Cost to AWS
	NRA	Improved quality of discharges	Cost to NRA
	AWS/Councils/ Householders	Cessation of pollution	Cost to householders and district councils
	Householders	As above	Cost to householders May be ineffective due to local ground conditions
	Water Companies	Compliance of drinking water with EC Directive	Cost to Water Companies
	Householder/ Environmental Health (to enforce)	Compliance with regulations issued by DoE for quality of private supplies	Cost to Householder
	Farmers/MAFF	Improved quality of groundwater both for supply and conservation/ ecology	Requires change in agricultural practice. Cost to farmers
	Site owners/MAFF/ Health and Safety Executive/NRA	Reduce risk of groundwater pollution	Cost to industry
	NRA	Improved groundwater quality. Reduced spread of pollution	Cost to site owner

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 13ii) Continued	Increased pollution prevention activity to forstall future problems
ISSUE No. 13iii) GROUNDWATER CONTAMINATION BY PESTICIDES	Improved method of disposal Further investigations are required at sites as they are identified remedial action taken, and legislation enforced Encourage changes in pesticide type and methods of use
ISSUE No. 13iv) GROUNDWATER CONTAMINATION FROM WASTE DISPOSAL SITES AT INGHAM AND BARTON MILLS	Investigations into improved containment and effluent control
ISSUE No. 13v) IMPACT OF WASTE DISPOSAL SITES GENERALLY ON WATER QUALITY	Improve monitoring activities
ISSUE No. 14. LITTLE OUSE AND LARK - OIL DISCHARGES FROM SURFACE WATER SEWERS	AWS to investigate and consider viability of oil interceptors
ISSUE No. 15 HIGH NITRATE CONCENTRATIONS IN RIVER WISSEY	Reduce agricultural application of nitrates within locality of River Wissey and tributaries

	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
	NRA	Reduced incidence of contamination	Additional resources and expertise required by NRA
	Site owners/MAFF/ Health and Safety Executive/NRA	Reduced risk of groundwater pollution	Cost to Industry/agriculture
	NRA	Reduced impact of pollution	Cost to site owners Requires change in agricultural practice
	NRA/MAFF	Reduced impact of pollution	Cost to site owner Requires change in agricultural practice and chemicals used
	Site operator	Reduced likelihood of groundwater contamination	Cost
	Council/Site Operators/ NRA	Improved management and identification of leachate effect on water quality	Cost to NRA and others in manpower resources
	AWS	Reduces the number of incidents	Cost to AWS
	NRA/MAFF	Reduction in nitrate concentration. Environmental benefits. Water quality at existing PWS intake improved	Requires change in agricultural practice Reduction in crop yields May require change in legislation Long term solution only

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 16 INSUFFICIENT GROUNDWATER TO MEET FUTURE DEMANDS	Import water from| other catchments Effective demand management by existing licence holders Licence revocation Non-renewal of time limited licences Provision of winter storage from surface water sources Recharge aquifer with surface water during wet periods Develop plan/models to improve understanding of groundwater mechanisms
ISSUE No. 17 INSUFFICIENT SURFACE WATER IN SUMMER TO MEET CURRENT AND FUTURE ABSTRACTIVE DEMANDS	Provision of winter storage

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA/Licence holder/AWS	Reduced pressure on catchment resources Possible environmental benefits	Dependent on availability of outside resources. Cost of transfer Possible detrimental effect on chalk river ecosystem
NRA/Licence holder	Better use of existing resource Allows future growth as predicted Long term cost savings to abstractor Potential for more reliable supply	Cost to abstractor
NRA	Reduces pressure on catchment resources Environmental benefits	Cost to NRA in compensating licence holder Politically sensitive
NRA	Reduces pressure on catchment resources. Environmental benefits	Financial loss to licence holder
Licence holder	Reduces pressure on catchment resources More reliable water supply in summer Potential to create conservation habitat Potential for development to commercial fishery	Cost to licence holders Loss of agricultural land
NRA/Licence holder	More efficient management of existing resources	Cost. Risk of environmental damage
NRA	Improve aquifer management	Cost and timescale
Licence holder	Reduces pressure on catchment source More reliable water supply in summer Potential to create conservation habitat Potential for development to commercial fishery	Cost to licence holder

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 17 (Continued)	Import water from other catchments Effective demand management ie restrict future growth Review licence controls and ensure minimum control levels are set Control unlicensed surface water abstraction
ISSUE No. 18 SLACKER DEMAND - NOT CONTROLLED BY WATER RESOURCES ACT 1991	Voluntary agreement with IDBs over quantities abstracted Install and read meters Change of legislation to clarify water resource and land drainage operational activities Provide increased winter/flood water storage in IDB areas Retention of higher levels in summer in IDB system

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA/Licence holder/ AWS	Reduces pressure on catchment source. Possible environmental benefits	Dependent on availability of outside resources. Cost of transfer. Detrimental
Licence holder	Better use of existing resource. Allows future growth as predicted. Long term cost savings to abstractor Potential for more reliable supply	Short term cost to abstractor
NRA	Balance demand on summer resource	Possible cost of compensation
NRA	Better management of existing resource Benefit to river ecology Better knowledge of actual demand	Legal uncertainty of powers Cost of implementation and monitoring Politically sensitive
NRA/IDBs	Better management of existing resource Benefit to river ecology Avoids legal disputes	Possible reduced quantity to existing licence holders. Cost of compensation Politically sensitive
NRA	Better knowledge of actual demand More effective control during summer period	Cost and manpower implication Legal uncertainty Politically sensitive
NRA/MAFF/ DoE	More effective control Removes legal uncertainty	Administrative costs
IDBs/Licence holders	Reduces demand on summer resource Environmental benefit More reliable supply	Cost of construction Politically sensitive
IDBs/MAFF	Better management of existing resource Reduced cost of pumping to IDBs Possible interference with farming activity	Reduced storage capacity in IDB drains for summer floods

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 19 "IN RIVER NEEDS" ARE NOT QUANTIFIED AND MAFFs NEED TO BE DEFINED	Carry out extensive ecological studies throughout the catchment
ISSUE No. 20 CATCHMENT AREAS FOR WETLAND SITES OF CONSERVATION VALUE NEED TO BE DEFINED	Carry out hydrological and hydrogeological studies
ISSUE No. 21 TRANSFER OF WATER FROM RIVER LARK TO CUT-OFF CHANNEL FOR AMENITY AND ENVIRONMENTAL PURPOSES	Carry out environmental and hydraulic study of river needs Sealing bed and banks of Cut-Off Channel for water retention
ISSUE No. 22 REDUCTION OF ELY-OUSE MRF AT DENVER	Carry out environmental assessment of impact of reduction (Ongoing)
ISSUE No. 23 RIVER CORRIDOR HABITAT CLASSIFICATION REQUIRED	Analyse Rivers Environmental Database (RED) into a standardised classification Ongoing update of RED
ISSUE No. 24 DEGRADED INSTREAM HABITAT - NON NAVIGABLE RURAL RIVERS	Recreate riffle/pool sequences

	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
	NRA	Protects in-river ecology. Improved resource management Verification of water resource availability. Satisfies legal requirements	Cost and timescale Possible restriction on existing abstractors
	NRA	Provide effective protection of existing wetland sites Improves water resource management	Cost Technical complexity of study
	NRA	More effective resources management for environmental needs Retention of existing water levels Maintains existing amenity levels	Cost of study. Depletion of River Lark in dry periods
	NRA	Retention of minimum water for environmental/amenity needs	Cost. Loss of existing habitat Reduction of groundwater percolation Possible effect on river corridor
	NRA	Increase raw water transfer to Essex	Possible adverse environmental impact Increased siltation to downstream tidal river affecting navigation
	NRA	Aids strategic planning within the catchment Enhancement of river corridor habitat	
	NRA	Continuous monitoring Up to date information	Cost
	NRA (Main river) / IDB + Riparian Owners (non main river)/District Council (award drain)/ County Council	Increased ecological diversity Possible water quality improvement	Cost. Possible flood defence implications

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 24 (Continued)	Create two stage channels Construct current deflectors, groynes etc Reduced routine channel maintenance
ISSUE No. 25 DEGRADED INSTREAM HABITAT - NAVIGABLE RIVERS	Review weed cutting regime to retain wider margin Create "wet berms" when dredging Create off river refuge areas Soft option engineering to embanked watercourses. (already ongoing assessment)
ISSUE No. 26 RIVER CORRIDOR HABITAT DIVERSITY ON EMBANKED WATERCOURSES	Review grass cutting regimes - late cutting in sensitive non-grazed areas Encourage tree planting in agreed areas

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA(Moin river) / IDB + Riparian Owners(non-main river) /District Council (award drain)/ County Council	Improvements to instream and river margin habitat diversity Improves self cleansing of river Improved appearance	Cost. Possible loss of land OR possible loss of flood capacity Possible cost implications on changed maintenance requirements
As above	As above	Cost (although cheaper than above) Small loss of flood capacity
As above	Improvements to instream and river margin habitat diversity Improves self cleansing of river Improved appearance. Cost savings	Short term land losses Improvements may only be seen very long term
NRA	Reduces bank erosion Creates habitat diversity Possible cost savings	Possible conflict with anglers and navigators
NRA	Reduces bank erosion Creates habitat diversity	Cost. Land Take (not high value)
NRA	Increases habitat diversity	Cost. Land Take (more than "wet berm" option, still not high value)
NRA	Protects river margin habitat Still provides adequate flood defence Prevents erosion of berm by river traffic. Possible cost saving	Possible conflict with anglers and navigators
NRA	Increased conservation value of flood bank grassland	Possible logistical complications
NRA/Riparian Owners/ County Councils	Increased habitat diversity Landscape improvement	Care required not to compromise flood defence needs. Cost

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 27 LOSS OF WETLAND SITES ADJACENT TO RIVERS IN RURAL AREAS	Construct riffle-weirs to increase water table locally. Landowner agreement to change agricultural practice, with compensation under ESA, Countryside Stewardship or Set Aside Increase height of weirs/ sluices or amend operational controls on non-navigable main rivers
ISSUE No. 28 DEVELOPMENT IMPACTS ON THE WATER ENVIRONMENT	Whilst continuing with its statutory consultee role with the Planning Authorities, endeavour to persuade them to adopt the NRA Anglian Region Model Policies as policies in their local development plans
ISSUE No. 29 ASSESSMENT OF WATER SUPPLY/SOURCE AT PLANNING APPLICATION STAGE	To amend the form to include water supply source ie. mains/borehole
ISSUE No. 30 TO EXTEND THE LITTLE OUSE NAVIGATION TO BRANDON TOWN CENTRE	Promote study to look at options Alterations to Brandon Staunch to form lock for boats, plus moorings near Brandon Town Centre

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA/Landowner/MAFF/ Countryside Commission	Conservation enhancement to riverside meadows Retains river levels. Possible recharge to groundwater	Cost of construction
NRA	As above. Increased flexibility from flood defence point of view	Cost to increase height No additional benefit to in-river habitat Possible reduction in water quality upstream of structure
NRA/Local Authorities	Ensures NRA interests are fully taken into account in all developments	Implications on Local Authority Control Cost implications to landowners/ developers
Local authorities	Enable the NRA to better assess planning proposals in terms of water resources and to advise accordingly	Initial cost of change of administration to Councils
NRA/Local Authority/ IWA etc	Improved interest to head of navigation Provide increase in tourist trade to Brandon Possible increase of income Increase in boat traffic may reduce weed growth	Cost of alteration to Brandon Staunch to facilitate navigation upstream. Possible conflict with other river users. Possible risk of pollution due to increased boat traffic
As above	As above	As above

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 31 TO EXTEND RIVER LARK NAVIGATION TO MILDENHALL	Promote study to look at options
ISSUE No. 32 LACK OF NAVIGATION FACILITIES	Improve lock capacity for boat traffic Provide increased number of toilet pump out facilities Provide increased number of short stay moorings Provide increased number of public launch sites
ISSUE No. 33 BOAT SAFETY STANDARDS	Improve boat safety standards
ISSUE No. 34 HOLD WATER ON FLOOD PLAINS	Increase height of weirs/sluices to retain more water on flood plain during flood event

	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
	NRA/ Local Authorities/ IWA etc.	Improved interest to head of navigation. Provides increase in tourism Possible increase of income Increased boat traffic may reduce weed growth	Cost. Difficulty with maintaining navigation water levels Impact on existing environment Possible conflict with river users Possible risk of pollution due to increased boat traffic
	NRA	Reduced traffic delays to customers Improved level of service Possible increase of income	Cost of construction Increased boat movement
	NRA/Marinas	Reduced risk of pollution Overall water quality improvement Increased amenity value of watercourse	Cost of capital contribution from NRA to Marinas Cost to boat owner
	NRA	Generates income Improved level of service Tourism benefits	Cost of construction
	NRA/ Owners	Improved river access Improved level of service Tourism benefits from increased river usage	Cost. Greater enforcement need Increased boat traffic Risk of abuse by river users
	NRA/ BWB/IWA/ Manufacturers	General safety of boaters Reduced incidence of physical accidents	Cost to manufacturers Greater enforcement need
	NRA/Landowners/ MAFF	Environmental improvement (see Issue 25) Possible improved aquifer recharge Increased flood protection to downstream urban areas	Closer monitoring of flow/levels required Initial cost of raising weirs

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 35 REDUCED CAPACITY OF FLOOD PLAINS WITHIN EMBANKED CHANNELS	Restore grazing Mowing Increased channel capacity to offset loss of flood plain Designate as Washlands
ISSUE No. 36 STANDARDS OF SERVICE FOR FLOOD DEFENCE	To assess the area at risk from flooding, the effective standard of service, and the target standard of service
ISSUE No. 37 LACK OF RECREATIONAL FACILITIES	Develop Denver complex to accommodate marina, camping and caravan site and visitors centre Improve public access to NRA owned land by statutory footpaths and bridleways
ISSUE No. 38 LITTER COLLECTION ON NRA OWNED LAND	Introduce and implement standard of service to meet legal requirements Imposing conditions to leasees

	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
	Landowner	Environmental benefits Maintain flood plain capacity	Stock not available in sufficient numbers because uneconomic. Cost
	Landowner	Maintains flood plain capacity Maintains grassland habitat (less effective)	Cost. Lower environmental benefits
	NRA	Increase in river storage Navigation benefits	Excessive cost. Environmental damage
	NRA	Regulation and enforcement for maintenance. Maintains flood plain capacity. Possible environmental benefits	
	NRA	Identifies planning gaps and enables capital and maintenance works to be prioritised Utilises resources to best effect	Does not cover "non " main river
	NRA/Developer	Generates income to NRA Meets NRA objectives Improved public awareness Tourism benefits	Loss of high grade agricultural land Capital cost of outlay Minimal loss of flood storage
	NRA/County Council	Promotes public image of NR Increased access to countryside	Possible conflict with flood defence, anglers and agricultura tenantsl Possible increase in litter collection
	NRA	Environmental enhancement to countryside Reduces risk of pollution and damage to wildlife	Cost

ISSUES AND OPTIONS

ISSUE	OPTIONS
ISSUE No. 39 THE LOCALISED FLOODING OF PROPERTY DUE TO INADEQUATE OR LACK OF DRAINAGE INFRASTRUCTURE	Improve existing or install new infrastructure Ensure new development does not exacerbate existing flooding problems
ISSUE No. 40 TO ACHIEVE LONG TERM TARGET OF CLASS BIOMASS IN SPECIFIC RIVER LENGTHS	Habitat enhancement to maximise the natural in river production of fish in the following stretches: River Wissey - downstream of Northwold, River Lt Ouse -downstream of Knettishall, River Thet - downstream of East Harling, River Sapiston - downstream of Ixworth. Using methods outlined in Issues 23 and 24 Water Quality improvements to Old West River

	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
	County Councils/ District Councils/AWS/ Riparian owners	Prevents flooding Allows future development	Cost. Need unified effort. Lack of legislation
	NRA/ District Council/ County Council/AWS/ Developers	Prevents flooding	Cost
	NRA	Reduce dependency of restocking Benefits conservation ecology of river. Self sustaining population levels	Cost to NRA Long term initiatives
	NRA/ AWS	Meets F2 Fishery Objective	Potential cost to AWS

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 9 regional groups each one mirroring an area served by a former regional water authority.

The main functions of the NRA are:

Water resources — eet the water companies, abstract water

Environmental quality Pollution Control — ter quality in s; granting vater quality;

Flood defence — defences; the rivers and sea

Fisheries — and nd waters and

Conservation — the water environment and protecting its amenity.

Navigation and Recreation — navigation responsibilities in three regions — Anglian, Southern and Thames and the provision and maintenance of recreational facilities on rivers and waters under its control.

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