

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.

During this planning process, 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:

Upper Nene Catchment Management Plan, Area Manager, National Rivers Authority, Northern Area, Aqua House, Harvey Street, Lincoln, LN1 1TF.

Comments must be received by 23 May 1994.



River Nene, Barnwell Mill.

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 working with many people and organisations and 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.



River Ise, Burton Latimer - September 1992.

- 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.
- Influence planning authorities to control development through Town and County Planning legislation.

CATCHMENT FACTS

Area 1510 km²

Population Existing 519,656

WATER QUALITY

Length of river in National Water Council (NWC) Class for 1992

Class:	km	Class:	km
1A (very good)	13.2	3 (poor)	28.7
1B (good)	69.9	4 (bad)	6.8
2 (fair)	162.7		

Minor tributaries not included.

WATER RESOURCES

Availability: **Groundwater** None reliably available

Surface water Only reliable during the winter.

FLOOD PROTECTION

Length of designated main river 427 km (maintained by NRA)

No. of NRA Flood Storage Reservoirs 15

FISHERIES

Length of salmonoid fishery 41 km Length of cyprinid fishery 190 km

CONSERVATION

Sites of Special Scientific Interest (SSSI) 46 Water dependent SSSI 18

NAVIGATION

Length of Navigable River 79 km

Length of canal 65 km

No. of locks 34

THE CATCHMENT

The Upper Nene Catchment is an upland area of beauty and contrast.

Historically this attachment is predominantly agricultural, its rolling hills set with picturesque stone villages and thatched roofs in a landscape dominated by the valley of the river Nene with its wide flood plain - subject to regular inundation - and the meandering course of the Nene and its backwaters. The industrial base of the catchment is linked to agriculture, ie milling and leather related industries - tanneries, shoe making, etc.

Superimposed on this rural backdrop are the recently expanded urban developments such as Northampton, Wellingborough and Daventry which have brought with them a wider industrial base the most notable of which in visual terms are possibly the steel industry at Corby now in decline and sand gravel extraction between Northampton and Thrapston.

Within the catchment, water reservoirs at Pitsford, Ravensthorpe and Hollowell supply the bulk of demand for water within Northamptonshire. There are no great abstractive demands for water by either agriculture or industry within the



catchment. Anglian Water Services however, rely heavily upon the waters of the Nene both for Pitsford Reservoir within the catchment, and for Rutland Water which lies outside this catchment, the water for which is abstracted at Wansford.

DEVELOPMENT/LAND USE

The population of this catchment is approximately 520,000; it grew by 22% between 1961 and 1991 and this trend is forecast to continue. The major conurbations of the catchment are Northampton, Wellingborough, Corby, Daventry, Kettering and Rushden.

Agricultural land use is evenly split between pastoral and arable farming; industry is diverse, no longer being dominated by the shoe and leather factories, the major employment in the catchment being from the service sector.

INFRASTRUCTURE

The catchment is served by an improving road network, the M1 which traverses to the west of the catchment, looks likely to be the subject of a road widening scheme, the A1-M1 link road due shortly for completion, along with improvements to the A45/A602 between Northampton and Oundle will complement the existing road infrastructure.



Farming.

Two rail routes cross the catchment, ie the London - Leicester line via Kettering and Wellingborough and the London - Rugby line via Northampton. Both provide links into London, the Midlands and beyond.

The River Nene is a navigational river between Northampton and the Wash, with access to the Grand Union system at Northampton and to the Great Ouse via the Middle Level system at Peterborough; the Nene is used as a recreational rather than as a commercial waterway.

WATER QUALITY

Water Quality throughout the Nene Catchment is variable, influenced by:-

- (i) run-off from large urban and industrial areas;
- (ii) historical land uses within the catchment, eg iron and steel works and ore quarrying;
- (iii) discharges from major sewage treatment works;



- a) the major surface water intake works operated by Anglian Water Services at Wansford where water is abstracted and pumped to fill Rutland Water.
- b) operation of 3 reservoirs for public water supply by Anglian Water Services at Pitsford, Ravensthorpe and Hollowell.
- c) abstractions associated with gravel workings at a number of sites in the main Nene valley. The water is used mainly for gravel washing and is largely re-circulated on site, so the net demand on water resources is low.

The water resources of the Catchment are largely committed to existing water uses. However, no deficiency in water supplies is forecast for the next 10 years.

FISHERIES

The fish population in the main river is typical of lowland rivers in eastern England. In terms of biomass common bream, roach, dace, chub and pike are the dominant species. Notable species in the Upper Nene are carp and barbel. Barbel were recorded in fishery surveys of the River Nene for the first time in 1989. In 1993 a programme of barbel restocking was initiated.



Brown trout populations exist in both the Kislingbury and Brampton branches of the Nene, where little angling pressure occurs. The larger tributaries of the Nene, the Ise and the Willow Brook both have sections which are stocked with trout on a regular basis. In the Ise a very small population of Grayling has recently been supplemented by restocking.

Recreational and competitive angling occurs throughout the catchment on rivers and lakes. Trout fishing also takes place on some backwaters and tributaries of the Nene and in the adjacent lakes. The lack of embankment along the Nene is an advantage to anglers who can fish the river from a flat safe position level with the water, however the limited access causes angling to be concentrated around bridges and other access points where car parking is available.

FLOOD DEFENCE - PROTECTION

There are two distinct methods of flood defence within the catchment. In rural areas extensive use is made of floodplains - bi-annual inundation on the Nene, is not uncommon. In urban areas, flood defence relies heavily upon the storage of floodwaters for controlled release of flows within the capacity of the downstream channel.



The majority of urban flooding problems associated with main river have been addressed by past improvement schemes. Continuing development pressures can lead to the need for further works to maintain the status-quo in respect of existing standards of protection.

Flood defence standards are maintained by an ongoing programme of works wherein certain operations, eg weedcutting, are carried out annually in order to maintain channel capacities, while others, eg dredging to remove accumulated silt, are carried out in cycles appropriate to individual watercourses.

RECREATION AND NAVIGATION

The rivers of the Nene catchment are an important recreational resource within the catchment.

The Nene itself is a navigation between Northampton and the Wash and gives access to the Grand Union Canal and Middle Level systems. There are 34 locks along the Nene valley between Northampton and Wansford, 9 of which are used to discharge waters as a method of flood control. The navigation therefore serves in a dual function i.e. both for recreational purposes and land drainage/flood protection purposes.



Navigation - Cogenhoe Mill.

The Nene Way footpath follows the river from upstream of Northampton down to Wansford and the gravel lakes alongside the river are used for a variety of water based recreational activities including sailing, angling and windsurfing.

The River Nene between Northampton and Wansford is an extremely valuable pleasure and match fishing area - many habitats types exist from rapid shallow fast moving backwaters to broad deep meandering reaches offering opportunities for both specimen hunter and pleasure/match fisherman alike.

CONSERVATION

The Upper Nene and its tributaries are an important part of Northamptonshire's wildlife resource. Though managed and influenced by man over many centuries, long stretches of semi-natural river with its associated landscape, flora and fauna still exist.

The catchment contains 46 SSSI, 28 County Wildlife Trust Nature Reserves and 379 Sites of Nature Conservation Importance (SNCI).

The quantity and quality of water available in the catchment and its dynamic attributes are crucial to the character of the wetland and river habitats. During high flow periods the Nene spreads over the floodplain which maintains many valuable wet meadows. The numerous tributaries that feed the Nene provide a



River Nene, Irthlingborough.

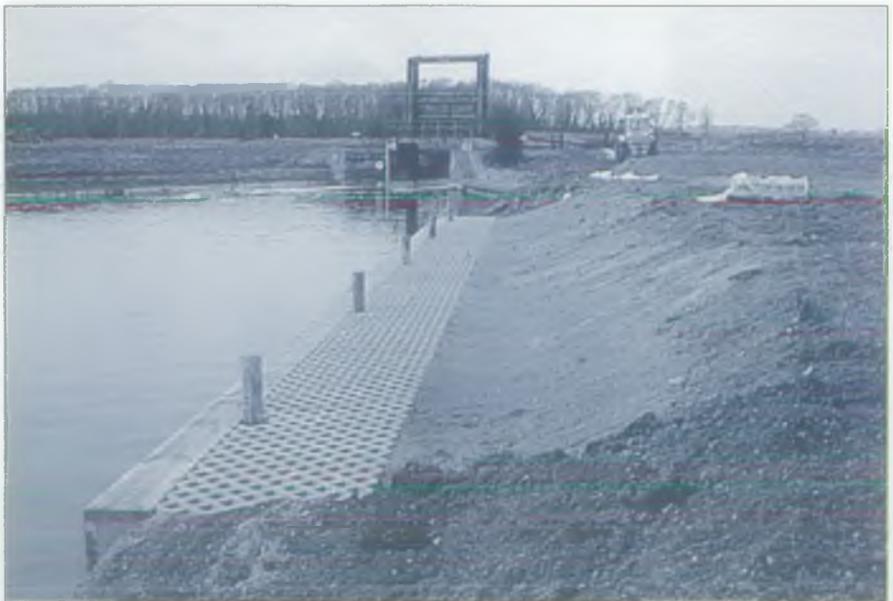
variety of instream and riparian habitats. In general terms this is a diverse and valuable catchment which must be protected.

ISSUES AND OPTIONS - GENERAL

This section of the plan considers options to address the issues that have been raised in the full consultation document. The options are presented as 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 a Final 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.



Improved landing stages, Northampton Lock.

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 1: Length of the River Nene failed to meet their water quality objectives as a consequence of nutrient enrichment, i.e. eutrophication</p>	<p>Designate relevant lengths of the River Nene as sensitive under the UWWT directive.</p> <p>Discourage the use of phosphate rich detergents.</p> <p>Storage of water in the upstream catchment, for maintenance of residual flow.</p> <p>Encourage changes in agricultural land use.</p>
<p>Issue 2: Stretches of watercourse are NWC Class 3 and 4 (poor quality)</p>	<p>Improve discharges to affected watercourses.</p>
<p>Issue 3: The Rushmere Lake/Blue Lagoon in Northampton is adversely affected by algae, including blue green algae.</p>	<p>Investigate reasons and produce an action plan for algal management, in particular for blue green algae.</p> <p>Remove sediments and change physical characteristics of Blue Lagoon in line with the proposed extension of the Barnes Meadow Local Nature Reserve</p>

ABBREVIATIONS

For key to abbreviations please see page 38.

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
<p>NRA/DOE</p> <p>NRA/Detergent Manufacturers/ Members of the public.</p> <p>NRA/Beneficiaries.</p> <p>NRA/Land owners.</p>	<p>Legislative support for requiring nutrient removal from discharges to the River Nene upstream of Wansford and Duston will be provided. River water quality in the Upper and Lower Nene will improve as the degree of Eutrophication decreases.</p> <p>Reduction in phosphates discharged through sewage treatment works to the River Nene.</p> <p>Reduces the potential for the conditions under which excessive algal growth develops.</p> <p>Reduction in nutrient enhancement. Coordination with stewardship scheme.</p>	<p>The financial cost of nutrient removal will be borne by those responsible for making the discharge and their customers.</p> <p>Would only produce a partial solution to the problem.</p> <p>Cost, partial solution.</p> <p>Cost, restrictions in land use. Long term solution.</p>
<p>NRA/Dischargers</p>	<p>Improved water quality and enhanced amenity value.</p>	<p>Cost to dischargers and NRA in carrying out extensive investigation.</p>
<p>NRA</p> <p>NRA/District Council/Developers.</p>	<p>Improved water quality and aesthetic appearance.</p> <p>Improved water quality and aesthetic appearance.</p>	<p>Cost. Partial solution.</p> <p>Cost.</p>

ISSUES AND OPTIONS

ISSUE	OPTIONS
Issue 3 continued	Increase flow through the Blue Lagoon.
Issue 4: Several watercourses in the catchment fail to comply with proposed fishery ecosystem objectives	Improve discharges to affected watercourses. Carry out cost benefit analysis to determine whether improvements required can be justified.
Issue 5: The number of pollution incidents occurring in the catchment is increasing	Carry out proactive pollution prevention inspections and identify potential sources of pollution and seek the co-operation and increased awareness of those responsible in reducing the pollution potential of their activity. To persuade local authorities to include pollution prevention measures when granting planning permissions. To seek additional regulatory powers to require pollution prevention works.

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA	Improved water quality.	Cost. Partial solution. The normal summer flow is inadequate.
NRA/Dischargers NRA	Improved water quality Better targeting of expenditure on environmental improvement.	Cost Some improvements maybe discounted.
NRA/Dischargers/Developers. NRA/Local Authorities NRA/DOE	Reduced frequency of pollution incidents. Improved water quality. Cost savings on pollution incident investigations. Reduced frequency of pollution incidents. Improved water quality. Cost savings on pollution incident investigations. Reduced frequency of pollution incidents. Improved water quality. Cost savings on pollution incident investigations.	Cost of implementing pollution prevention measures. Cost of implementing pollution prevention measures. Cost of implementing pollution prevention measures.

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 6: Surface water run off from developed areas causes pollution.</p>	<p>Investigate known sources of pollution and produce an action plan.</p> <p>Adopt pollution prevention to prevent surface water discharges becoming contaminated.</p> <p>Increase awareness in those responsible for developing surface water systems.</p>
<p>Issue 7: Pollution is caused by inadequate sewerage facilities/ village sewers as a consequence of either hydraulically overloaded systems or inadequate individual facilities in rural areas</p>	<p>Provision of improved sewerage/sewage treatment systems.</p> <p>Increase routine maintenance of sewerage system.</p> <p>Object to relevant planning permission in affected areas.</p> <p>Use of NRA's statutory powers to control pollution</p>
<p>Issue 8: Water quality in Willow Brook fails EC Dangerous Substances Directive for zinc.</p>	<p>Further reduce the zinc concentration of discharges to the Willow Brook.</p> <p>Increase flow in Willow Brook.</p> <p>Do nothing.</p> <p>Carry out further studies at Deene Lake to determine the degree of contamination of sediments.</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
<p>NRA</p> <p>NRA/Planning Authorities/Developers.</p> <p>NRA/Developers.</p>	<p>Identifies problem sites.</p> <p>Reduced frequency and risk of pollution occurring.</p> <p>Improvements in initial design and installation of surface water systems.</p>	<p>Does not prevent pollution.</p> <p>Cost</p> <p>Pollution may still occur.</p>
<p>AWS/Individual householders/ District Councils</p> <p>AWS/Individual householders</p> <p>NRA/Planning Authority</p> <p>NRA/Polluter</p>	<p>Improved water quality.</p> <p>Reduce frequency of overflow.</p> <p>Prevents additional pollution.</p> <p>Improved Water Quality</p>	<p>The financial cost of improved sewerage and sewage treatment will be borne by those responsible for making the discharge and their customers.</p> <p>Cost</p> <p>Partial solution. Restrictions on development.</p> <p>Additional cost to polluter.</p>
<p>NRA/British Steel</p> <p>NRA/British Steel</p> <p>NRA</p>	<p>Compliance with EC Dangerous Substances Directive.</p> <p>Dilution of zinc concentration in Willow Brook.</p> <p>May comply without further treatment being necessary.</p> <p>Better understanding of influence which this site has had on water quality.</p>	<p>Cost</p> <p>Doesn't eliminate the source of the zinc.</p> <p>May fail to comply with consent conditions.</p> <p>Cost</p>

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 9: Rounds Hog Dyke fails to meet Water Quality F2 Fisheries (RQO) and Spray Irrigation objectives</p>	<p>Investigate source of contamination and the necessary remedial action to be taken.</p>
<p>Issue 10: The River Ise Site of Special Scientific Interest (SSSI) is being adversely affected by leachate from Rushton Landfill Site</p>	<p>Implement an action plan to prevent site from causing further pollution.</p> <p>Require County Council to change site licence conditions.</p>
<p>Issue 11: Corby - contaminated groundwater discharge from an unknown source causes pollution.</p>	<p>Investigate and trace source of pollution and carry out necessary remedial action.</p>
<p>Issue 12: Pollution of groundwater and/or surface water is being caused by discharges from landfill sites.</p>	<p>Effluent quality may be improved by treatment of discharge.</p> <p>County Council to amend site licence conditions to restrict the type of waste accepted.</p> <p>Remove polluting material from site.</p> <p>Line site with impermeable material.</p> <p>pollution.</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA/Dischargers	Improved river water quality.	Cost
Waste Regulatory Authority/ Operators. County Council	Improved water quality. Improved water quality.	Cost to site owner. Owner may surrender license and walk away from site. Cost to site owner. Owner may surrender licence and walk away from site.
NRA/Polluters	Improved water quality.	Cost
Operators. Waste Regulatory Authority/Operator. Operator Operator	Reduction of Pollution and improved water quality. Reduction in potential polluting material. Reduce pollution. Reduction in groundwater pollution Retains leachate.	Cost to operator. Partial solution to problem, existing polluting material remains. Cost to operator. Cost to operator. Leachate still requires treatment prior to discharge.

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 13: The degree of commitment of water resources to meet licenced demands in the Upper Nene catchment (principally PWS) impacts on water resource deficiencies in the Lower Nene catchment</p>	<p>Increase minimum residual flow downstream of Orton Sluice.</p> <p>Modify the pumping regime at Wansford.</p> <p>Develop winter storage reservoir to augment River Nene in critical periods.</p> <p>Reduce demand by achieving voluntary and/or compulsory restrictions.</p> <p>Utilise NRA water allocation from Rutland Water to meet demands from River Welland to reduce demand from River Nene.</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA	Increases water availability. Reduces deficit in dry drought periods.	Cost of providing new water source. Variation to Wansford licence impacts on AWS and would require compensation. Partial solution.
NRA/AWS	Increases water availability. Reduces deficit in dry drought periods.	Cost of providing new water source. Variation to Wansford licence impacts on AWS and would require compensation. Partial solution.
NRA	Current and future demands can be met. Conservation benefit. Water Quality improvements.	Cost. Potential conservation impact.
NRA/AWS	Reduces deficit in dry/drought periods.	Reduced revenue to NRA from abstraction licences. Needs legislative change and/or compensation (cost). Fails to meet demand and/or requires development of winter storage (cost). Requires widespread co-operation. Cost to users. Partial solution. Potential unreliability of NRA allocation. Cost to NRA of utilising allocation.

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 13 continued</p>	<p>Import water from River Trent to augment River Nene in critical periods.</p>
<p>Issue 14: Current future direct water demands from the River Nene for spray irrigation and industry cannot be met to target standards of reliability</p>	<p>Develop winter storage reservoirs to replace direct summer abstraction.</p> <p>Import water from the River Trent and/or canal system to augment the River Nene in critical periods.</p> <p>Utilise Eyebrook reservoir to augment the Willow Brook to enhance Nene river flows.</p> <p>Develop a new winter storage reservoir for summer river regulation.</p>
<p>Issue 15: NRA does not have effective regulatory control over water abstractions from the River Nene. AWS's Abstraction Licence at Wansford has no effective daily or annual abstraction limits.</p>	<p>Review abstraction licence conditions.</p>

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 16: The effectiveness of flood forecasting and control, for flood risk areas in the catchment, are restricted by a lack of monitoring information.</p>	<p>Improve gauging station network, develop forecasting models and extend the telemetry system.</p> <p>Improve gauging station network.</p> <p>Develop forecasting model.</p> <p>Extend telemetry system.</p>
<p>Issue 17: The level of protection to properties against flooding is inadequate in certain locations.</p>	<p>Improvements to watercourse and structures where possible.</p> <p>Provide diversion relief channel where possible.</p> <p>Provide upstream attenuation.</p> <p>Floodproof individual properties.</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA	Improved forecasting. More accurate measurement.	Cost.
NRA	Improved monitoring.	Cost. Partial solution.
NRA	Improved forecasting. Will identify floodplain.	Cost. Complexity. Partial solution.
NRA	Improved monitoring.	Cost. Partial solution.
NRA (main river) Local Authority (non main river)	Reduces flood risk. Improved land drainage.	Cost. Possible environmental damage. Possible adverse effect downstream.
NRA (main river) Local Authority (non main river)	Reduced flood risk.	Cost. Land loss. Possible environmental damage.
NRA (main river) Local Authority (non main river)	Reduced flood risk. Opportunity for environmental enhancement.	Cost. Land loss. Possible environmental damage.
NRA/Local Authorities/Individuals	Reduced flood risk. Relatively inexpensive. No environmental impact.	Piecemeal approach. Limited effectiveness.

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 18: Effective management of the navigation is limited due to insufficient information on;</p> <p>A. The present use of the navigation and its carrying capacity, both in terms of boat traffic and environmental impact.</p> <p>B. The customer</p>	<p>Undertake survey on use of Navigation and its environmental impact</p> <p>Install automatic systems to monitor boat movements</p> <p>Identify the range of customers and determine their needs</p> <p>Develop User Groups specific to Nene</p>
<p>Issue 19: Amenity services on the Nene are low in comparison with other navigations, discouraging its use as a recreational facility</p> <p>A. Insufficient facilities exist on the navigation in terms of sanitary facilities, rubbish disposal points and mooring facilities.</p>	<p>NRA to provide suitable range of amenity services.</p> <p>NRA to promote suitable range of services through joint ventures.</p> <p>Encourage private developers to take on board.</p> <p>Develop facilities specifically for canoeing and</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA	Provides management information.	Only "one-off" survey
NRA	Provide information on the extent of the navigation use.	Cost Automatic device needs to be designed. Partial solution.
NRA	Provides management information. Improve customer liaison. Identification of conflicts between users.	Only "one-off" picture of Navigation. May raise false hopes.
NRA and Users	Improved customer liaison. Target improvements to Navigation Management.	
NRA	Improved level of service. Reduced pollution risk.	Cost.
NRA/Others	Improved level of service. Reduced pollution risk.	Cost.
NRA/Developers	No cost to NRA. Improved level of service. Reduced pollution risk.	
NRA/District Council and Landowners	Improved level of services to users.	Cost.

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA	Ease of operation. Improve speed of locking process. Safer operation.	Cost. Loss of traditional methods of operation. Increased maintenance requirement.
NRA	Operations by elderly or infirm users improved.	Cost. Loss of traditional methods of operation. Increased complexity of control system required leading to possible decrease in reliability. Increased maintenance requirement.
NRA	Assistance available to river users. Improved liaison with customer.	Cost. Availability when required.
NRA	Improved service to users.	Cost.
NRA	Users will be aware of the dangers.	Cost.
<p data-bbox="66 1110 238 1135">NRA and landowners</p> <p data-bbox="66 1251 270 1339">Landowners, NRA Countryside Commission, Wildlife Trust</p>	<p data-bbox="416 1110 637 1197">Increased habitat diversity. Increased bio-diversity. Increased amenity value.</p> <p data-bbox="416 1251 692 1401">Increased habitat diversity. Increased bio-diversity. Increased retention time of water in Catchment. Increased amenity value.</p>	<p data-bbox="741 1110 779 1135">Cost.</p> <p data-bbox="741 1251 779 1276">Cost.</p>

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 21 Areas of river bed in rapid and fast flowing stretches have been identified as having low habitat diversity</p>	<p>Restore and enhance during Routine Flood defence maintenance or Capital Works in liaison with Flood Defence.</p>
<p>Issue 22: A sustainable otter population no longer occurs within the catchment</p>	<p>Undertake additional otter surveys in the Catchment including identification of otter haven/holt sites</p> <p>Target general habitat improvement to identified priority areas</p> <p>Identify and construct otter haven/holt sites in identified priority areas.</p>
<p>Issue 23: The native crayfish is under threat of extinction in this catchment</p>	<p>Seek to prevent the establishment of exotic crayfish farms within the Catchment</p> <p>Determine the crayfish status of the River Ise following the incidence of plague</p> <p>Enhance river stretches containing native crayfish during Routine Flood Defence Works or Capital Works</p> <p>Designate the Fisheries Ecosystem Water Quality Target - F2 for the Brampton Branch.</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA	Increased habitat diversity. Increased amenity value.	Cost.
<p>Northamptonshire Wildlife Trust NRA, English Nature Northamptonshire County Council</p> <p>Northamptonshire Wildlife Trust, NRA, English Nature, Northamptonshire County Council</p> <p>As above</p>	<p>Identify limiting factors and produce management plans.</p> <p>Improved conditions for otters.</p> <p>Improved conditions for otters.</p>	<p>Potential conflicts with other users.</p> <p>Potential conflicts with other users.</p>
MAFF, NRA, English Nature, Northamptonshire Wildlife Trust	Reduces the potential of native crayfish being infected with plague and/or exotic escapees competing with native crayfish.	Restriction on crayfish farming industry.
<p>NRA, English Nature</p> <p>NRA</p>	<p>Establish presence/absence of nature and/or exotic crayfish.</p> <p>Improve habitat for crayfish.</p>	
NRA, Industry	Ensure water quality is adequate for crayfish.	Potential cost to industry etc discharging into system.

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 24: Fish biomass levels only achieve Class C/D between Earls Barton and Thrapston.</p>	<p>Investigate cause of low biomass levels.</p> <p>Improve water quality.</p> <p>Create open connections between the Nene and neighbouring sand and gravel pits.</p>
<p>Issue 25: The free passage of fish upstream and downstream is restricted by physical barriers</p>	<p>Install fish passes in appropriate locations</p> <p>Ensure that any new structures include a fish pass</p>
<p>Issue 26: The grayling population in River Ise SSSI is in decline</p>	<p>Undertake detailed investigation on Grayling population</p> <p>Restock with Grayling bred from adults in the Ise.</p> <p>Conserve and enhance river environment for Grayling.</p>
<p>Issue 27: Changes in land and river use have an adverse effect on the water environment</p>	<p>To gain a direct influence in the planning process using existing legislation and adoption of Anglian Region Model policies</p> <p>Seek legislative change in land-use approval system</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
<p>NRA</p> <p>NRA</p> <p>NRA, Landowners</p>	<p>Greater awareness of the issue.</p> <p>Improved fish stocks.</p> <p>Provide shelter areas for fish during periods of high river flow.</p> <p>Provide additional spawning and nursery areas.</p> <p>Provide silt trap and thereby reduce downstream river maintenance.</p> <p>Provides additional flood water storage.</p>	<p>Cost.</p> <p>Cost to dischargers.</p> <p>Cost of structures.</p> <p>The number of suitable sites is limited.</p>
<p>NRA</p> <p>NRA</p>	<p>Permit fish to move throughout the river system.</p> <p>As above.</p>	<p>Cost.</p> <p>Cost.</p>
<p>NRA/English Nature</p> <p>NRA/English Nature</p> <p>NRA/English Nature</p>	<p>Assess extent of decline and identify reasons.</p> <p>Maintains genetic integrity of stock.</p> <p>Maintain genetic integrity of stock. Ensure future survival.</p>	<p>Cost.</p> <p>Working within the SSSI.</p> <p>Potential damage to remaining population.</p> <p>Surviving population may be too small for successful recruitment.</p>
<p>Local Authorities/NRA/Developers/Landowners</p> <p>NRA/Government</p>	<p>Ensures the protection and enhancement of the water environment is taken into account for changes in land use.</p> <p>Clear guidance for landowners/developers.</p>	<p>Implications on local authority control.</p> <p>Partial solution.</p> <p>Possible cost implications to landowners/developers.</p> <p>Restrictions on land-use.</p>

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 27 continued</p>	<p>Improve landowner/developer awareness of possible adverse impacts of land use changes</p>
<p>Issue 28: The restoration of gravel extraction areas needs to be undertaken sensitively.</p>	<p>Restore applying zonal restrictions</p> <p>Restore on a piecemeal basis</p>
<p>Issue 29: Landfill sites within the flood plain accepting potentially polluting waste represent a significant threat to water quality if flooding occurs.</p>	<p>Seek cooperation of planning authorities and developers to restrict development and minimise risk of pollution from landfill sites in flood plain.</p>
<p>Issue 30: Development in the catchment leading to increased run-off poses a significant flood risk.</p>	<p>Seek to prevent development where there is a known flood risk</p> <p>Flow balancing</p> <p>Off-site improvements to watercourse</p> <p>Strategic scheme</p>

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA/Local Authorities	Improved awareness and protection of the water environment	Partial solution. Potential development restrictions.
<p>Planning Authority/NRA/ Local Interests</p> <p>NRA/Local Interests/ Planning Authority</p>	<p>Develop conservation and recreation areas with minimal conflict</p> <p>Some environmental benefit will accrue</p>	Haphazard approach to restoration
NRA/Planning Authorities/ Developers.	Reduced risk of pollution occurring. Prevents loss of flood storage.	Restrictions on land use
NRA through Planning Authority	No increase in flood risk	Adverse effect on local economy
Planning Authority, Developer (NRA)	No increase in flood risk. Opportunity for environmental enhancement	Cost. Future maintenance
Planning Authority Developer (NRA)	No increase in flood risk	Cost. Possible adverse effect on others. Possible environmental damage.
Planning Authority Developer (NRA)	Provide long term integrated solution. Future development catered for. Opportunity for environmental enhancement.	Cost. Need for pre-funding.

ISSUES AND OPTIONS

ISSUE	OPTIONS
<p>Issue 31: Development in the catchment leading to loss of flood plain can increase severity and frequency of flooding elsewhere in the catchment and is detrimental to the environment.</p>	<p>Refuse development</p> <p>Compensatory Works to maintain status quo</p> <p>Restrict nature of development to water based activities</p>

ABBREVIATIONS USED

AWS	Anglian Water Services
RQO	River Quality Objectives
MAFF	Ministry of Agriculture, Fisheries and Food
DOE	Department of the Environment
UWWT	Urban Waste Water Treatment
PWS	Public Water Supply

RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA through the Planning Authority	<p>Negate need for environmentally damaging flood defence works.</p> <p>No costs.</p> <p>No loss of existing flood storage</p>	<p>Possible adverse effect on local economies</p>
Planning Authority Developer, NRA	<p>Allows development to proceed.</p> <p>Potential for environmental enhancement.</p>	<p>Costs.</p> <p>Loss of wetlands - environmental damage</p>
Planning Authority Developer, NRA	<p>Minimal works required to maintain status quo.</p> <p>Minimum cost.</p> <p>Potential for environmental enhancement.</p>	<p>Possible environmental damage</p>

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 each one mirroring an area(s) served by a former regional water authority.

The main functions of the NRA are:

- Water resources — The planning of resources to meet the water needs of the country; licensing companies, organisations and individuals to abstract water and monitoring the licences.
- Environmental quality and Pollution Control — maintaining and improving water quality in rivers, estuaries and coastal seas; granting consents for discharges to the water environment; monitoring water quality; pollution control.
- Flood defence — the general supervision of flood defences; the carrying out of works on main rivers and sea defences.
- Fisheries — the maintenance, improvement and development of fisheries in inland waters including licensing, re-stocking and enforcement functions.
- Conservation — furthering the conservation of 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.