

# THE LOWER NENE CATCHMENT MANAGEMENT PLAN



## FINAL PLAN - JUNE 1994



ENVIRONMENT AGENCY

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ANGLIAN REGION

Kingfisher House, Goldhay Way,  
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Peterborough PE2 5ZR



**NRA**

*National Rivers Authority  
Anglian Region*

## INTRODUCTION

Established in 1989, the National Rivers Authority has as its role that of "Guardians of the Water Environment". As such, it is committed to protecting and improving the water environment and protecting people and property from flooding. Establishing a sound planning base for the development of river catchments is essential to their future management.

The rivers, lakes, estuaries and coastal waters of England and Wales have never before been subject to such large and, in some cases, rapidly increasing demands from the users of water. Many different uses interact or compete for water and will inevitably come into conflict with one another. The National Rivers Authority is the major manager of the water environment in England and Wales and has the responsibility to reconcile conflicts 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 interests of all who benefit and use rivers, groundwaters, estuaries and coastal waters.
- We will be business like, efficient and caring towards our employees.

We have chosen to use Catchment Management Plans to translate these principles into action. 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 generations.

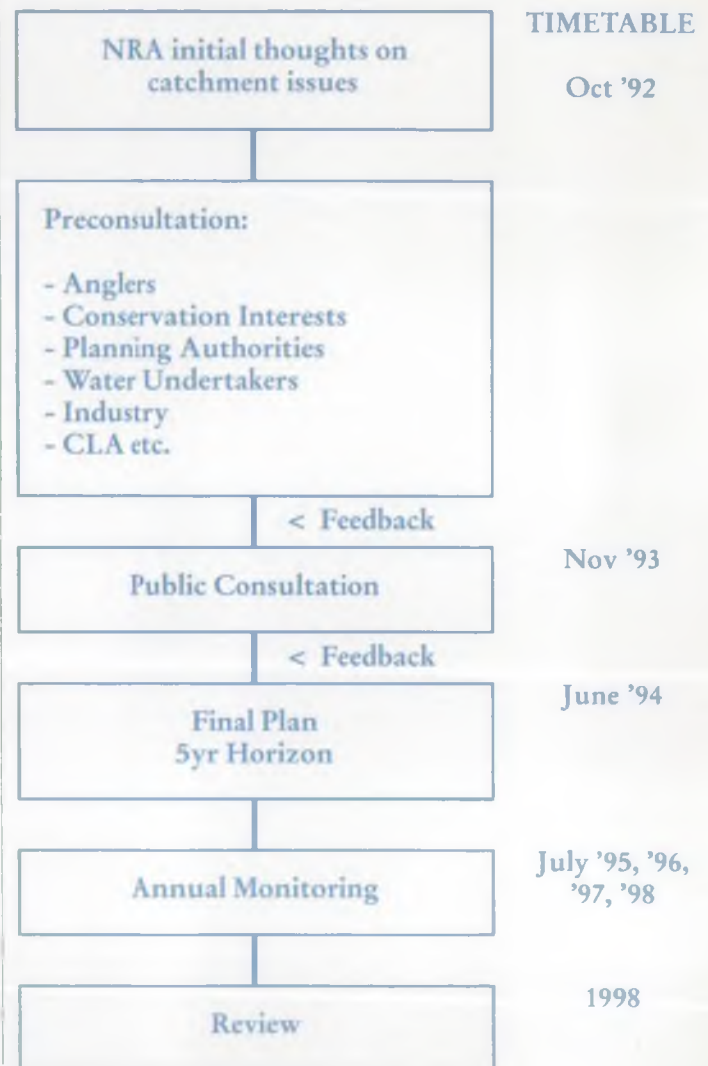
This Plan describes our vision for the catchment, identifies problems and issues and proposes actions to resolve them. The plan also forms a framework to promote consistent and appropriate responses to development proposals and to influence the drafting of structure/local plans.

In the context of Catchment Management Plans the long term is 10 years, the medium term 5 years and the short term 1 to 2 years. The life of this plan is 5 years after which it will be reviewed. The identified actions will be subject to ongoing monitoring.

## REVIEW OF THE CONSULTATION PROCESS

Catchment Planning is a process through which we set out to identify all the water related problems and issues in a catchment through the medium of public and internal consultation, to identify possible courses of action for solving these issues and to produce a proposed plan of action to resolve them.

The planning process itself is identified below:



The Authority published the Lower Nene Catchment Management Plan in November 1993 as a consultation document seeking comment from all those interested in the water environment.

As anticipated, conflicting views have been raised on some of the issues and options identified in the consultation document. This plan seeks to promote a way forward which balances the interests of all users having given due consideration to the views expressed.

The co-operation required from water users cannot be overstated. The NRA looks to work with users to balance interests and seeks to improve our water environment.



Comments were received from the following on the Consultation Draft:

Anglian Water Services Ltd,  
Ministry of Agriculture, Fisheries and Food,  
Peterborough City Council,  
South Holland IDB,  
Middle Level Commissioners,  
Royal Society for the Protection of Birds,  
National Farmers Union,  
North Level IDB,  
English Nature,  
Peterborough & District Angling Association,  
Dr B Mawhinney MP, Mr G Young, Mr I Simons,  
Mr M F Brown, Mr M Moss MP,  
Sir Fred Catherwood MEP

## OVERVIEW OF THE CATCHMENT

The Lower Nene Catchment is principally a lowland area with very fertile alluvium and fen deposits particularly in the east of the catchment. Consequently, the catchment is rural in nature providing arable farming products. Peterborough provides a centre for industry at the upper end of the catchment, while Wisbech is a focus for agriculture and is served by the River Nene navigation.

The Catchment has two distinctive land drainage systems. In the smaller upper section to the west of Peterborough, the Nene meanders in semi-natural state through a rolling mixed landscape. East of Peterborough, the Nene is a wide embanked highland carrier surrounded by low, flat, fen farmland.

Much of the Catchment lies below mean high spring tide level, and therefore flood defences are vital. An artificial drainage network has been established, the maintenance of which is the responsibility of local Internal Drainage Boards.

The Catchment lies in an area of relatively low rainfall and of increasing population. During summer months, flows in the River Nene can be very low, making management of the limited water resources particularly important.

The upstream extremity of the catchment has been taken to be Anglian Water Services Ltd Wansford abstraction point for Rutland Reservoir, since this has a significant influence on the quantity and quality of water entering the catchment.

## VISION FOR THE LOWER NENE CATCHMENT

The Lower Nene Catchment is home to some 250,000 people who depend on the water environment in many ways and value it for the quiet pleasure, enjoyment, and protection through flood defence measures that it brings to their local communities.

At the upstream end of the catchment significant quantities of water are abstracted into Rutland Reservoir which is subsequently used as a source of water for domestic and industrial purposes.

A key issue in this plan is to ensure that current and future abstractive demands for water and "in-river" ecological needs can both be reliably met.

In the short-term it is proposed that any shortfall between demand and available river water that may occur in a dry summer is managed by negotiation between the NRA and the various abstractors. The success of co-operation during the drought led to interim arrangements being drawn up in 1992 and these form the basis of a way forward.

In the longer-term, diverting significant quantities of treated waste water into the non-tidal section is proposed. This could be complemented by resiting the tidal sluice. Additionally, development of winter storage reservoirs by farmers will enhance the reliability of available water and reduce demand for summer water. The return of treated effluent locally will help to augment the water resources of the river and thereby sustain the various abstractions which are crucial to agricultural, navigation and conservation interests.

To accomplish the above a multi-disciplinary project team is proposed to consider and recommend future water allocation policy for the Lower Nene. There will be implications in relation to and the timing of a feasibility study to consider the resiting of the tidal sluice and the diversion of major effluents to the non-tidal Nene.

Key objectives in addition to the above will be:

- To reduce nutrient enrichment of the river by phosphate removal from large effluent discharges in the upper river catchment.
- To improve the quality of the tidal River Nene to meet estuary Class B standards by improving the five major discharges to the tidal section.
- To improve water quality in the Counter Drain (north) by improving the quality of the Flag Fen Sewage Treatment Works effluent.
- To undertake a feasibility study to consider the resiting of the tidal sluice to the Wisbech area to resolve the long-term siltation problems in the tidal Nene, and to provide an additional freshwater resource, freshwater fishery and an improved amenity value for the river. The study will consider the question of extending the commercial navigation.
- To provide a fish pass at the Dog-in-a-Doublet Sluice to allow the free passage of migratory fish.
- To utilise every opportunity to increase the habitat diversity in the river corridor downstream of





*Recreation on the River Nene*

Peterborough through both our routine maintenance and/or capital programme and others actions.

- To investigate and promote the recreational use of the catchment including the provision of additional navigation facilities.

Establishing strong NRA involvement and links with local communities and their representatives is perceived to be necessary to ensure that local views are respected and future development decisions reflect this vision for the catchment. We will therefore :

- Work with all relevant parties to implement the principles of sustainable development and thereby gain a direct influence in the planning process using existing legislation to adopt NRA, Anglian Region model policies.

## CATCHMENT USES AND ACTIVITIES

The catchment is predominately rural. Arable farming is the primary land use, a high proportion of the catchment being Grade 1 and 2 under the MAFF classification. The catchment's highly developed modern farming industry makes a major contribution to the national economy.

Changes in land use can bring with them threats to the environment with additional surface water run-off, additional risks of pollution, and increased demands on water supply. The NRA through its role as a consultee in

the planning process aims to balance and to minimise any adverse impact on the water environment.

The Catchment's major water resource is the River Nene which has very little natural baseflow - dry weather flows are augmented by effluent returns to the river. There are gravity and pump discharges to the River Nene from non-main river watercourses and also gravity feeds to the IDB drain systems out of the Nene. There are no significant water resources under-ground (groundwater) in the catchment since any water-bearing rock strata are thin and offer little development potential.

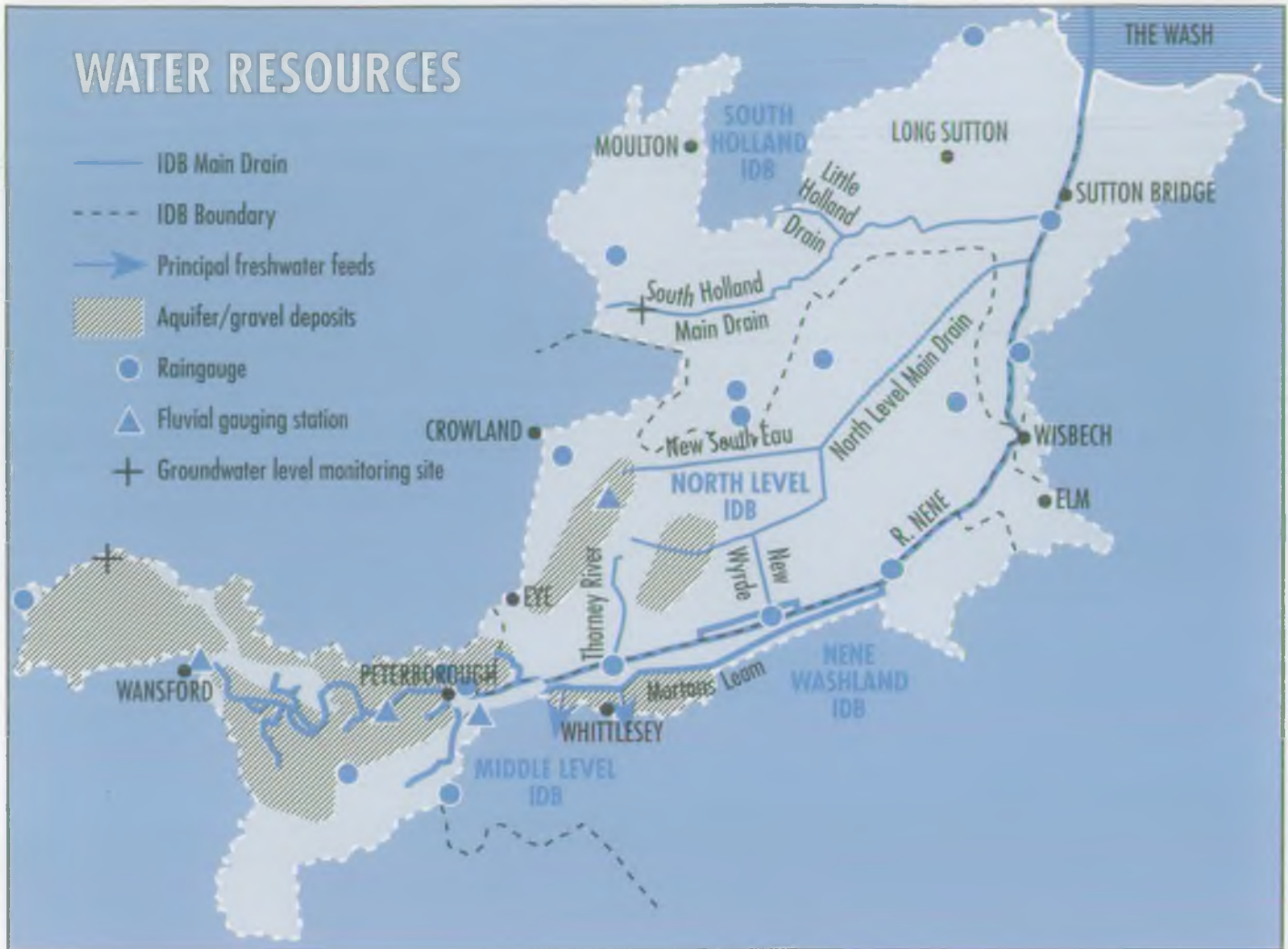
The quantity of water available is crucial to the well-being of the river. Environmental demand for water to maintain a high summer watertable is growing concurrently with agricultural and public water supply demands. In the drought summer of 1991, the Nene effectively ceased to flow.

The major water demands in the catchment are as follows:

- a surface water intake works operated by Anglian Water Services at Wansford abstracts water and pumps it to Rutland Water,
- summer demand from the River Nene via Stanground Lock supports irrigation and maintains navigation levels in the Middle Level Drain system,



# WATER RESOURCES



- water demands in winter and summer to meet the important conservation needs on the Nene Washes,
- summer demand for irrigation use in the Fenland area.
- to maintain the navigation level in the River Nene,
- to maintain the fishery value and amenity value of the River Nene

The balance between water availability and water abstracted is of key importance in this catchment. The Anglian Water Services Ltd licence to abstract water at Wansford has a control flow of 136 tcmd below which abstraction must cease. River flows in the Nene at Orton can fall below 136 tcmd naturally and independently of Anglian Water Services abstraction upstream at Wansford. Much of the demand for water downstream of Orton is affected by slackers (privately owned structures which can allow a flow of water from the river to a lowland drainage system). These are not controlled by current Water Resources Legislation and do not require Abstraction Licences. Under these conditions (ie dry summers), slacker demands for water downstream of Orton can exceed the available flow in the river. Current indications are that any changes to legislation that would affect slackers will not be forthcoming in the near future.

Water quality in the Lower Nene Catchment is substantially influenced by water received from the Upper Nene. Its quality is generally good, but it contains enhanced levels of nutrients. The high abstractive demands on the river produce low summer flows and these, together with the enhanced levels of nutrients, produce ideal conditions for algal blooms which occur both in the river and in the reservoirs fed by its waters.





In the tidal section of the River Nene downstream of the Dog-in-a-Doublet Sluice a number of significant discharges occur which, combined with the high abstractive demands in this catchment make water quality planning a complex issue. A water quality model has been developed to assist in this process.

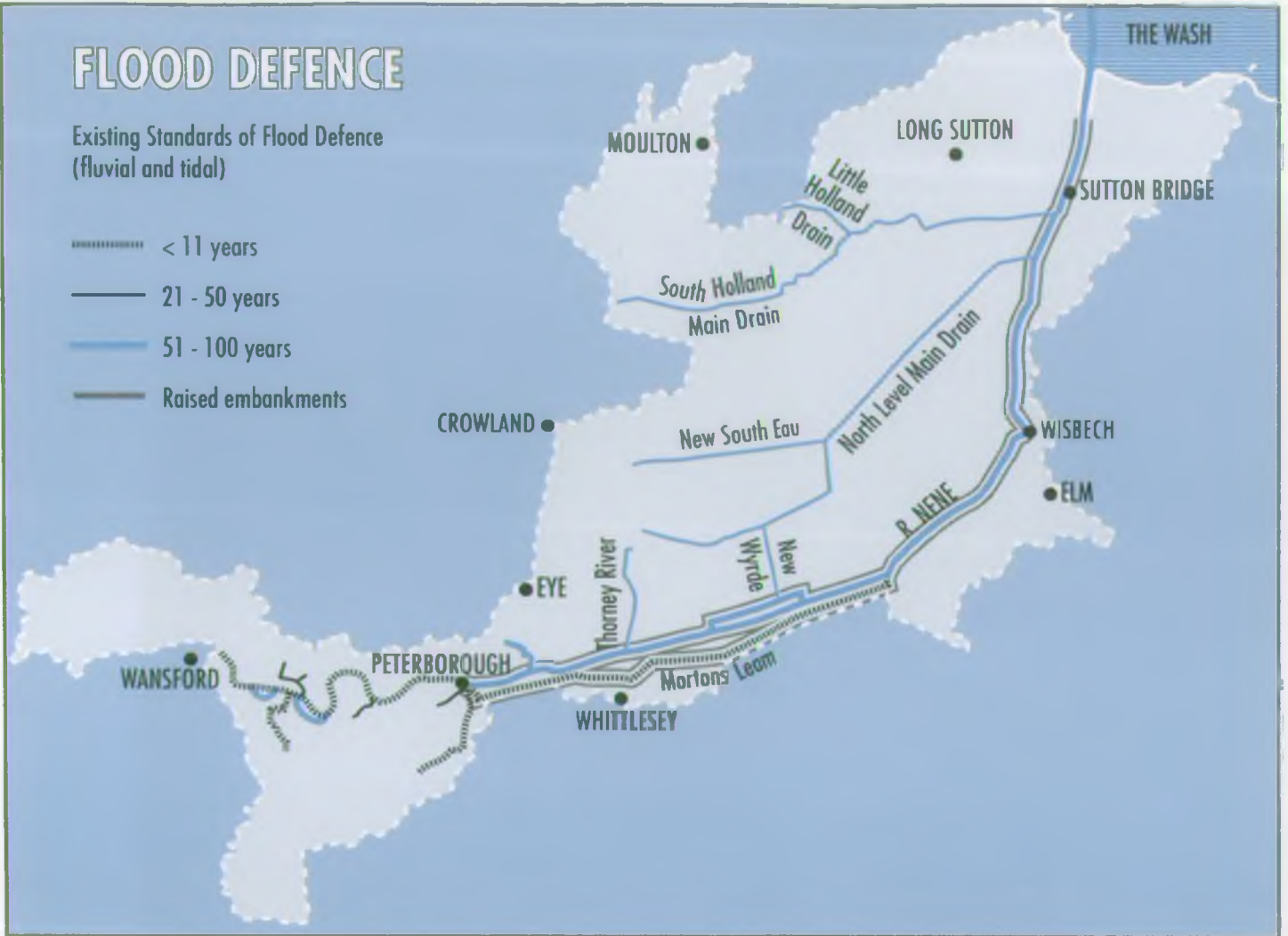
Water quality throughout the Lower Nene Catchment is variable. The Counter Drain (north) and the tidal River Nene are currently particularly notable for their poor quality. Low lying areas served by Internal Drainage Board systems tend to be affected by salt water ingress particularly in times of low flows.

The Lower Nene characterises two distinct methods of flood control. Upstream of Peterborough City, the river retains a natural quality with regular extensive use being made of the flood plain found on either side of the river

# FLOOD DEFENCE

Existing Standards of Flood Defence  
(fluvial and tidal)

-  < 11 years
-  21 - 50 years
-  51 - 100 years
-  Raised embankments



for storage of water within the Nene Valley. Downstream of the City, the landscape becomes low lying fen with a straightened river contained within raised flood embankments.

The fen makes up the largest part of the Lower Nene Catchment. Drainage throughout this area is provided by 8 Internal Drainage Boards. Maintenance of the main river and its embankments are the responsibility of the NRA.

The tidal limit of the Nene is some 7km downstream of Peterborough City at the Dog-in-a-Doublet Sluice. During periods of tidelock, when discharge of floodwaters is precluded, the Nene Washlands become important as a strategic flood water storage area thereby preventing flooding of low lying areas in Peterborough City.

The tidal estuary is approximately 40km long. The channel crosses extremely low lying fenland. Flood protection embankments exist to provide protection from flooding by tidal waters, the maintenance of which are essential and is undertaken in ways sensitive to the environment.

Recent low flows in the Nene have exacerbated a long

standing siltation problem at both the outfall to the Wash and downstream of the Dog-in-a-Doublet sluice near Whittlesey.

Conservation interest is dominated by the Nene Washes, a large internationally important wetland classed as a SPA, SSSI and a RAMSAR site.

In total there are 14 SSSIs; (8 with wetland interests, 4 woodland and 2 geological), 8 County Wildlife Trust Reserves and 25 Sites of Nature Conservation Importance in this catchment.

The NRA promotes recreation associated with inland and coastal waters. When carrying out this duty, the NRA takes account of other users and seeks to balance any conflict which may exist between different uses.

Recreational access to rivers within the catchment is variable and where appropriate NRA seeks improvements. The "Nene Way" passes through much of the catchment and follows the river from Wansford to downstream of Guyhirn.

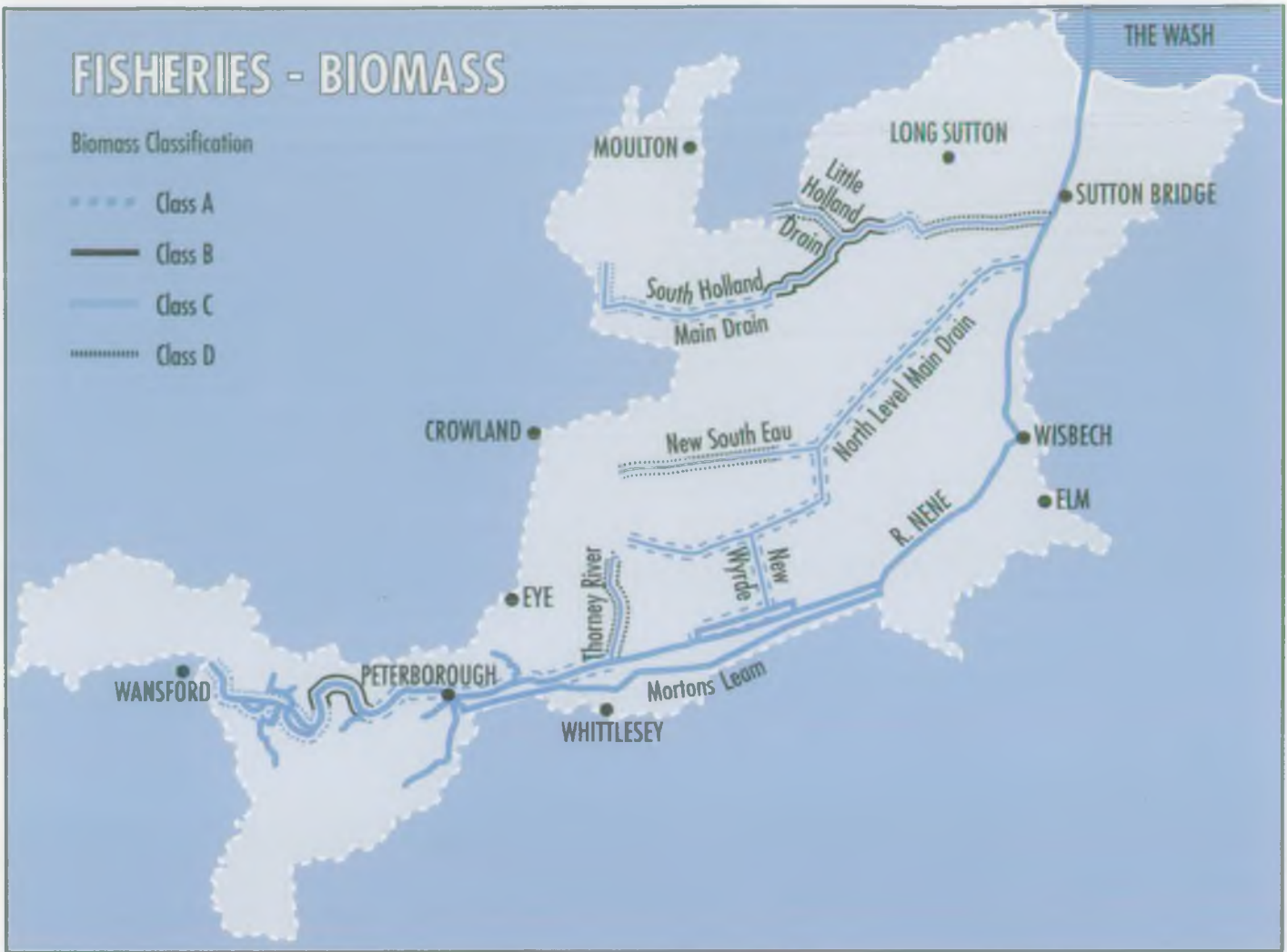
There are important recreation sites on the river, such as Ferry Meadows, where sailing and windsurfing occur. Angling, both for pleasure and in competition occurs



# FISHERIES - BIOMASS

## Biomass Classification

- Class A
- Class B
- Class C
- Class D



throughout the catchment with particularly popular stretches being on the Nene from Wansford down through Peterborough to the Dog-in-a-Doublet Sluice, the South Holland Main Drain and the North Level Main Drain.

Once operated as a commercial navigation, the Nene is now used only for recreational boating from the tidal limit at the Dog-in-a-Doublet Sluice downstream of Peterborough to its junction with the Grand Union Canal at Northampton. Approximately 1,500 leisure craft are licensed on the Nene Navigation, but facilities for its use are poor.

Commercial operations are still ongoing on the tidal reach with 1,500 tonne ships using the port facilities at Wisbech and 3,500 tonne ships using the busy port at Sutton Bridge.

A representation has been received during the consultation process concerning the viability of extending the commercial navigation to Peterborough.

The fish population in the Lower Nene catchment is good and typical of lowland rivers in eastern England. In terms of biomass (ie. weight of fish) common bream, roach and eels are the dominant species in the catchment.

No breeding trout populations occur.

The presence of the continental species zander in the River Nene around Peterborough is significant and carp have been recorded in the Nene from Northampton to Peterborough.

On the tidal section of the River Nene (downstream of the Dog-in-a-Doublet Sluice) a coarse fish population, dominated by eels occurs, but changes to species associated with brackish conditions below Sutton Bridge. Commercial exploitation of eels occurs throughout the catchment.

## ACTION PLAN

The actions to be taken in the catchment over the next 5 years as a result of the consultation exercise, are outlined in the following tables. A number of issues require feasibility studies and appraisal of options prior to work commencing on site and in some cases the solving of issues may not be viable. Since there is limited funding available to meet regional requirements, funds are allocated on a priority basis. Therefore, the timing of planned actions will depend upon their priority compared with actions proposed elsewhere in the Anglian Region.

| ISSUES   | RESPONSIBILITY        | COST | ACTION PERIOD<br>94/5 95/6 96/7 97/8 98- | DETAILS  | BENEFICIARIES/<br>BENEFITS  |
|--|-----------------------|------|--|--|---|
| 1. Current and future water demands cannot be met to target standards of reliability, ie   | NRA/ Abstractors      | NIL  | ● ● ● ● ●                                | Short to medium term - seek agreement with water users to ensure interim controls during dry periods (based upon agreements/actions during 1988 - 1992 drought. Farmers (or consortiums) to develop farm reservoirs for storage of winter water: to improve reliability of water available for summer use. | Farmers; enhanced reliability. Navigation may be compromised less often in dry Summers. Reduced demand for summer water |
| (i) from the River Nene for spray irrigation, industry and navigation purposes.  | }                     | £40K | ■ ■ ■ ● ●                                | A multi disciplinary project team to be set up to review current policy and determine medium to long term water allocation policy for the Lower Nene. Consideration to be given to scenarios with and without effluent diversions.   | Balanced policy for water allocation. All users benefit.  |
| (ii) from IDB areas for spray irrigation.  |                       |      |  | Diversion of treated effluent to the non-tidal Nene could provide a source of water to meet the shortfall in resources in a dry summer.  | Shortfall in resources to meet demand largely eliminated  |
| (iii) in winter and summer to meet internationally important conservation purposes on the Nene Washes.                                       |                       |      |  | Options for increasing water availability will be investigated (see also Issue 20)   |   |
| 2. The NRA does not have effective regulatory control over water abstractions from the Lower River Nene.                                     |                       |      | ● ● ● ● ●                                | Short to medium term - seek agreement with water users to ensure interim controls during dry periods (based upon agreements/actions during 1988 - 1992 drought)  |   |
| (i) Anglian Water Services abstraction licence at Wansford has no effective daily or annual abstraction limits.                              | } DOE/NRA Abstractors |      | ■ ■ ■ ● ●                                | Medium to long term - Options/ Actions to be reviewed following determination of water allocation policy in Issue 1 above.   |   |
| (iii) Major water abstractions effected by 'slackers' are not licensed and outside NRA's regulatory control.                                 |                       |      |  | Review Anglian Water Services abstraction regime following determination of water allocation policy in Issue 1 above.  | Balanced water usage and improved resource management   |
| (iv) Principal water abstractions from the River Nene are not measured and information is not available to NRA in critical resource periods. |                       |      |  | Continued cooperation from abstractors will be required during periods of resource shortage  |   |

■ = Feasibility Study/Appraisal Period

● = Work on Site/Action

IDB = Internal Drainage Board

DOE = Department of the Environment



| ISSUES  | RESPONSIBILITY             | COST              | ACTION PERIOD<br>94/5 95/6 96/7 97/8 98- | DETAILS   | BENEFICIARIES/<br>BENEFITS   |
|---|----------------------------|-------------------|--|---|--|
| Issue 2 continued<br>(ii) The current minimum residual flow control point on Anglian Water Services abstraction at Orton Sluice is remote from the abstraction point and is an inaccurate flow gauging station. | NRA/AWS                    | £80K              | ● ●                                      | New gauging station at Wansford to be constructed, jointly funded by NRA and Anglian Water Services   | Better control of Wansford abstraction.  |
| 3. Water Resource management of the resource of IDB areas is limited by inadequate understanding of resource balances   | NRA/IDB                    | £30K              | ■  | Carry out review of resources and demands in Lower Nene IDB areas, timing driven by level of demand. May be offset by development of winter storage reservoirs.   | Farmers/<br>Conservation   |
| 4. River Nene fails to meet its River Quality Objectives as a consequence of nutrient enrichment.   | NRA/AWS                    |                   | ● ● ● ● ●                                | Designate the River Nene as Sensitive under the Urban Waste Water Treatment Directive. This will entail nutrient removal at Great Billing, Broadholme, and Corby Sewage Treatment Works. Ferric dosing to remove phosphate currently being undertaken at both Great Billing and Broadholme STW on an experimental basis. The impact of this work is being monitored by the NRA.   | Cleaner Water.<br>Fishermen.<br>Flora & Fauna.<br>AWS.                             |
| 5. Water quality in the tidal Nene fails to meet its objectives.  | NRA/AWS/<br>Industrialists | £10-20<br>million | ● ■ ■ ■ ■                                | The five significant discharges to the tidal Nene must be improved. The two industrialists (McCains and H L Foods) are to complete effluent treatment plants during the financial year 94/95 at an estimated cost of 3 - 4 million. The effluent from West Walton STW is currently satisfactory. Improvements to Flag Fen and Long Sutton STWs depend on the outcome of the 2nd Asset Management Plan for the Water Industry. | Cleaner Water.<br>Fishermen.<br>Flora & Fauna.<br>Water Resources/<br>Abstractors. |
| 6. Water Quality in the Counter Drain (North) fails to meet amenity standards   | NRA/AWS                    |                   | ■ ■ ■ ■ ■                                | Improve the quality of the effluent discharge by Flag Fen STW. Again this action depends on the outcome of the 2nd Asset Management Plan of the Water Industry.   | Cleaner water.<br>Fishermen.<br>Flora & Fauna<br>Water Resources/<br>Abstractors.  |

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|--|---|----------------------------|--|--|--|
| 7. Surface water sites discharging to the Padholme Drain require control in order that they do not compromise a sustained recovery in water quality.   | NRA/AWS/<br>Industrialists                            | £60k                       | ● ● ● ● ●                                | NRA to liaise with dischargers to provide: <ul style="list-style-type: none"> <li>oil interception on industrial premises.</li> <li>better control of discharges to surface water sewers under the ownership of AWS. NRA will monitor progress.</li> </ul>   | Cleaner Water.<br>Improved Flora & Fauna.<br>Public Amenity.<br>Improvement of River Nene. |
| 8. Salinity in the South Holland Main Drain causes failure of fishery standard and compromises spray irrigation use. Option - ensure that saline intrusion through the tidal sluice is minimised and construct a bed weir to prevent upstream migration of saline water. | IDB/NRA   | £1k                        | ●<br><br>● ● ● ● ●<br><br>■ ■ ■ ■ ■      | To minimise the saline intrusion via the tidal sluice. Work has been undertaken or agreed with the IDB.<br><br>To construct a bed weir. A temporary bed weir has been installed. The NRA is monitoring its effectiveness.<br><br>To further evaluate the degree to which natural saline water ingress occurs from "salt pans" in tributary catchments. The NRA to continue water quality monitoring. | Fishermen.<br>Abstractors.   |
| 9. Pollution caused by overflows of existing sewerage systems.   | AWS   | To be evaluated.           | Action prior to year 2000.               | Provide improved sewerage to prevent sewage and detritus entering the River Nene at the Peterborough Embankment. This has been identified in the 2nd Asset Management Plan for the Water Industry.   | Improved public amenity.   |
| 10. Pollution caused by inadequate sewerage and sewage treatment facilities in rural areas causes failure of amenity standards.  | AWS/District Councils/<br>Private Developers.         | Dependent on requisitions. | ● ● ● ● ●                                | Unless a change to the legislation is forthcoming the only practical option is for the District Council or the owners to requisition for first time rural sewerage schemes.  | Reduced rural pollution.<br>More available housing development.                            |
| 11. Facilities for safe access and egress to locks are inadequate.   | NRA   | £10K                       | ●  | Improve existing/provide new landing stages at Alwalton Lock.  | Boat users.  |
| 12. Navigation overnight facilities are inadequate.  | NRA/Local Authority/<br>Landowners/Boat Owners/Others | £10K                       | ■ ● ●                                    | Provide additional sites through joint ventures with others.   | Boat users.<br>Landowners.   |

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|---|--|-----------|--|--|--|
| 13. Sewage disposal points for boats are inadequate.  | NRA/Local Authority/<br>Landowners/Boat Owners/Others                            | 30k circa | ■  | Provide additional sites through joint ventures with others.   | Boat users.<br>Improved sanitation.                                  |
| 14. Restricted access to disadvantaged persons due to physically demanding lock operation.  | NRA  | £30K      | ■ ●  | Power guillotine gates experiencing high usage.  | Boat users.  |
| 15. The presence of non-native zander in the Nene is potentially damaging to the coarse fish population.                                | NRA  | NIL       | ● ●  | Monitoring zander populations during survey programmes.  | Anglers.   |
| 16. Free passage of migratory fish is prevented by Dog-in-a-Doublet Sluice.   | NRA  | £48K      | ●  | Construct a fish and eel pass around the sluice.   | Anglers.<br>Eel Fishermen.   |
| 17. Habitat diversity downstream of Peterborough is low.  | NRA  | *         | ● ● ● ● ●  | Undertake habitat enhancement without the loss of channel capacity downstream of Peterborough via flood defence capital and maintenance works. | General Public.<br>Fishermen.<br>Conservation Groups.<br>Landowners. |
| 18. Recreational use of the catchment may be under utilised.  | NRA/Local Authorities/Others   | £5K       | ■ ● ●<br>Implementation of works subject to funding. | Undertake study.   | General Public.<br>Recreational organisations.<br>Landowners.        |
| 19. Changes in land use impact on the water environment   | NRA/Planning Authorities/<br>Developers  |           | ● ● ● ● ●  | Planning Authorities will be encouraged to incorporate all NRA planning guidelines into their structure and development plans.                 | The water environment and its users.                                 |
| 20. Long term siltation in the Tidal Nene Estuary.  | NRA  | £60K      | ■ ■ ■  | To commission a study into the feasibility of moving the Tidal Outfall to some point closer to the sea.  | Flood Defence<br>Recreation<br>Water Resources<br>Amenity            |
| 21. Recreational uses of the "de-restricted mile" of the River Nene have the potential to conflict. Users have expressed their concern. | NRA/Local Authorities/<br>Peterborough AC/<br>British Federation of Water Skiers |           | ● ● ● ●  | Encourage liaison between various users to minimise conflicts.   | All users  |

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\* Dependant on flood defence capital and maintenance expenditure.

# 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:

- |   |  |
|---|--|
| 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; 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.       |

