

UPPER OUSE CATCHMENT MANAGEMENT PLAN



CONSULTATION REPORT SUMMARY - MARCH 1996



THE NRA SEEKS YOUR VIEWS

We welcome your comments on the Catchment Management Plan (CMP):

- Have we identified all the major issues?
- Have we identified all the practical options for action?

If you require a copy of the full consultation report or wish to respond to this report (see back cover), please write to:

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After 1 April 1996 - please address to the
Environment Agency

ALL COMMENTS SHOULD REACH US BY
13 JUNE 1996



ENVIRONMENT AGENCY



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WHAT IS CATCHMENT MANAGEMENT PLANNING?

River catchments are subject to increasing use by a wide variety of activities, many of which interact, some giving rise to conflicts. The many competing demands on the water environment and the interests of users and beneficiaries must be balanced. The NRA's mechanism for doing this is known as Catchment Management Planning.

This involves the NRA working with other organisations and individuals 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 CMP allows the NRA's functions and responsibilities to be applied in a coordinated manner within a particular catchment.

INTRODUCTION TO THE REPORT

The full Consultation Report gives a detailed account of how the water environment is used (eg, abstraction for public water supply, angling, agriculture, etc) and the state of the catchment to achieve these uses, for example, the quality of the water in its rivers. By comparing the state of the catchment

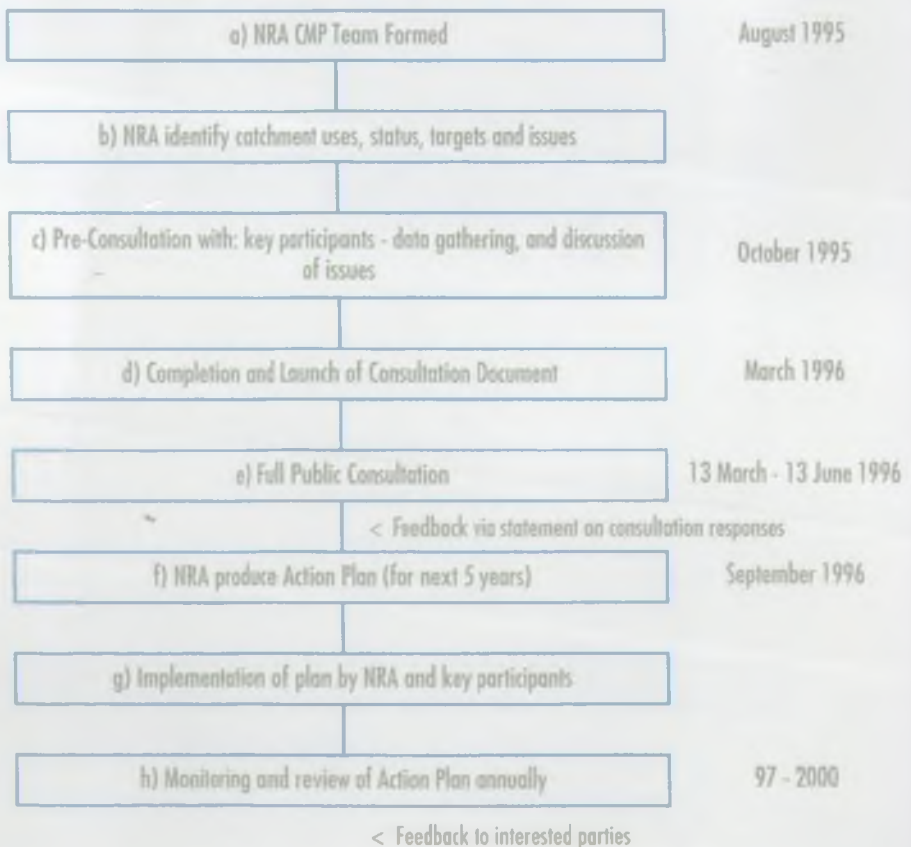
with our objectives for it, a number of issues have been identified. These are summarised in this document along with suggestions for management options to deal with them.

WE PARTICULARLY WANT TO RECEIVE YOUR VIEWS ON THESE ISSUES AND PROPOSED FUTURE ACTIVITIES.

Also given at the end of this document, is a summary of the key features and status of the water environment found in the Upper Ouse catchment.

After 1 April 1996, the NRA will join Her Majesty's Inspectorate of Pollution (HMIP) and Waste Regulation Authorities (WRAs) to form the Environment Agency. All references to these organisations should be assumed to be the responsibility of the EA after this date.

THE CATCHMENT PLANNING PROCESS FOR THE UPPER OUSE



PROPOSED CATCHMENT ISSUES AND OPTIONS

Given below are some initial options to address the 41 issues raised by the NRA and also those raised through early liaison with a number of other interested organisations and individuals.

YOUR COMMENTS ARE REQUESTED ON THESE ISSUES AND OPTIONS - together with any new ideas or suggestions.

The party responsible for carrying out each option has been identified - in some cases other than the NRA. This is because improvements to the water environment take the collaboration of all its users. It should also be remembered that the Do-Nothing or Status Quo option exists for each issue.

ABBREVIATIONS

AWS	Anglian Water Services
BCU	British Canoe Union
BW	British Waterways
CMP	Catchment Management Plan
DoE	Department of the Environment
EN	English Nature
IDB	Internal Drainage Board
IWA	Inland Waterways Association
MAFF	Ministry of Agriculture, Fisheries and Food
NFU	National Farmer's Union
NRA	National Rivers Authority
REC	River Ecosystems Class (Water Quality Objective)
RSPB	Royal Society for the Protection of Birds
STW	Sewage Treatment Works

PROPOSED CATCHMENT ISSUES AND OPTIONS

FLOOD DEFENCE ISSUES

ISSUE 1 FLOODING IN NEWPORT PAGNELL

Problem Flooding difficulties from the River Ouzel were experienced in parts of the town during September 1992, where housing, commercial property and access were all adversely affected.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Assessment and execution of works to the main	NRA	Improved levels of urban flood protection	Costs

ISSUE 2 FLOODING IN LEIGHTON BUZZARD

Problem Floodwaters from both the Clipstone Brook and River Ouzel affected housing, commercial property and access, causing widespread disruption to the town in September 1992

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Assessment and execution of river works	NRA	Improved levels of urban flood protection	Costs

ISSUE 3 INCREASED SURFACE WATER DISCHARGE INTO THE UPPER RIVER OUZEL

Problem To alleviate surface flooding in parts of Dunstable, AWS are proposing to renew surface water sewers. These will discharge into the upper River Ouzel which may adversely affect the flood risk in areas downstream, ie, Leighton Buzzard.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Hydraulic study	NRA/IDB	Identify impacts of additional surface water to downstream land use	Costs

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 4 RIVER MAINTENANCE STANDARDS

Problem The better clarification of flood defence needs will improve the decision making process regarding the ideal balance of priorities between conservation and flood defence interests. This will change current maintenance regimes towards a focus on urban and industrial areas as the main flood defence priority.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Complete Standards of Service Review	NRA	Better able to identify criteria and targets for expenditure	Difficulty of translating standard of service to attend maintenance activities
Apply criteria to Flood Defence maintenance	NRA	Value for money can be identified to effective targeting of resources	May reduce level of service where this exceeds target level

ISSUE 5 FLOOD DEFENCE AND CONSERVATION PRIORITIES

Problem The best balance between Flood Defence and conservation needs is not always achieved.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Identify Flood Defence priorities	NRA	Safeguard urban flood risk areas	Staff costs
Identify Conservation priorities	NRA	Achieve most practical balance, real enhancements	Staff costs

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 6 MAINTAINING THE FLOOD PLAIN

Problem Potential impacts on flood plain, particularly proposed development, land raising and afforestation initiatives.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Evaluation of proposals	NRA	Safeguard limits of flood plains areas and improve attenuation measures	Staff costs
Enforcement of byelaws	NRA/ Planning Authorities	Protect storage capacity and extent of flood plain for flood risk areas	Staff costs

ISSUE 7 RIVER CONTROL STRUCTURES

Problem Several river control structures are potentially reaching the end of their asset life.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Replace structures	NRA	Maintain established water levels for recreation, farming and conservation	Costs
Allow structures to decay and fail	NRA	Costs	Loss of accepted water levels by all customer groups

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 8 LITTER ON URBAN WATERCOURSES

Problem The NRA often receives complaints from members of the public regarding general littering and dumping in both main river and non-main watercourses within urban areas. Litter can cause blocking and subsequently flooding.

The NRA has a responsibility only to remove litter from sites within its ownership, which is centred within this Catchment on river control structures, ie, sluices and weirs that have land within a perimeter fence.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Advise riverside owners and others with potential to litter of their obligations	NRA/ Local Authorities	Maintain channel capacity and visual appearance	Costs
Encourage Local Authorities to act within public areas containing a river frontage	NRA	Maintain channel capacity and visual appearance	Costs

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 9 NON-MAIN RIVER FLOODING

Problem There has been a marked increase in the number of non-main river urban flooding incidents. This is either due to a lack of maintenance or extreme weather patterns overwhelming the local drainage system, ie, at Ravenstone, Tiffield and Thornborough.

The Water Resources and Land Drainage Acts 1991 impose a duty upon the NRA to exercise a general supervision over land drainage matters within its area. For watercourses other than main river, the Act identifies local Authorities or Internal Drainage Boards as having appropriate powers.

However, with regard to these ordinary watercourses, it is not practicable for the NRA to actively promote action other than through persuasion of other parties. The NRA is not empowered to require a local Authority to carry out works on non-main river watercourses.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Clarify the roles and responsibilities of the various Drainage Authorities	Local Authority NRA IDB's	Reduction in flooding risk Improved level of service	Availability of resources for undertaking remedial works

PROPOSED CATCHMENT ISSUES AND OPTIONS

WATER QUALITY ISSUES

ISSUE 10 ALGAL BLOOMS AT FOXCOTE RESERVOIR

Problem Algae are a natural part of lakes and reservoirs but under certain conditions, in particular high levels of nitrogen and phosphate, their numbers become excessive. Typically this can be recognised by the water turning green and “blooming” and by the occurrence of blue-green algal “scums” along the shoreline. Algal blooms, including Blue-Green algae have been found at Foxcote reservoir.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Reduction of phosphate from Brackley STW discharge.	AWS	Potential reduction in the frequency and magnitude of algal blooms.	Cost. Uncertainty of achieving a reduction in algal blooms.
Removal of phosphate at the inlet to the reservoir.	AWS	Potential reduction in the frequency and magnitude of algal blooms.	Cost. Uncertainty of achieving a reduction in algal blooms.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 11 EUTROPHICATION OF THE RIVER GREAT OUSE AND RIVER OUZEL.

Problem Phosphate levels in the River Great Ouse from Brackley to Bedford and River Ouzel from Dunstable to Newport Pagnell exceed the concentrations in the DoE guidance for the identification of Sensitive Areas (Eutrophic) under the Urban Waste Water Treatment Directive. Symptoms of eutrophication vary throughout the catchment, but include algal growths and blooms and the associated extreme variations in dissolved oxygen levels in the water. Foxcote Reservoir was designated a Sensitive Area (Eutrophic) in 1994. Another review of data for designations of Sensitive Areas (Eutrophic) is due to take place in 1997.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Consider designation as a Eutrophic Sensitive Area under the Urban Wastewater Treatment Directive.	NRA DoE	Provide framework to control nutrient inputs.	
Develop programme for nutrient reduction, possibly at STWs.	NRA	Reduction in nutrient inputs.	Cost.
Modelling of potential impact of nutrient control at STWs.	NRA	Improved Knowledge.	Model may not represent true picture.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 12 EXCEEDENCE OF NITRATE LIMITS AT CLAPHAM ABSTRACTION POINT FOR PUBLIC WATER SUPPLY.

Problem The EC Nitrate Directive (91/676/EEC) requires Member States to designate as Nitrate Vulnerable Zones (NVZ) all land areas which drain into waters upstream of an abstraction point for public water supply where the nitrate concentrations exceed, or could exceed 50mg/l. All of the Upper Ouse upstream of Clapham Water Intake, with the exception of Whistle Brook, has been proposed as an NVZ.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Designate Nitrate Vulnerable Zones.	MAFF	Protection of potable supplies. Compliance with EC Nitrate Directive.	Uncertainty of achieving reduction in nitrate concentrations.
Reduction in application of organic fertiliser within these zones.	MAFF NFU Manufacturers	Reduction in nitrates in controlled waters.	May take a long time for reduction in nitrate concentrations to be measured.
Installation of nitrate removal plants.	AWS	Removes nitrates from potable supplies. AWS will comply with legal commitments.	Cost.
Blending with low nitrate water at water treatment works.	AWS	Dilutes nitrate concentrations in potable supplies. AWS will comply with legal commitments.	Cost.
More stringent treatment at certain sewage treatment works.	AWS	Reduction of nitrate concentrations in river.	Cost.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 13 THE CONCENTRATION OF PESTICIDES IN THE RIVER GREAT OUSE AT CLAPHAM

Problem The EC Drinking Water Directive (80/778/EEC) sets a maximum concentration of 0.1 µg/l (micrograms/litre) for any pesticide in drinking water. The NRA is not directly responsible for the quality of drinking water, but must take appropriate action to safeguard resources when it is notified by water companies of any breach in the pesticide limit. In recent years, there have been exceedences in the River Great Ouse at Clapham. As a result of this, Anglian Water Services has installed treatment facilities to ensure drinking water complies with the EC Drinking Water Directive.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
National strategies to restrict the use of specific pesticides.	MAFF DoE NRA	Reduction in use of particularly harmful pesticides.	Cost. Potential change in pesticide use may result in an increase in the concentration of different pesticides.
Promote water protection issues and organise campaigns to encourage the careful use of pesticides.	NRA AWS	Reduction in the quantities of pesticides in controlled waters.	Uncertainty of achieving reduction in pesticide concentrations.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 14 PROTECTION OF CLAPHAM WATER TREATMENT WORKS SURFACE WATER ABSTRACTION

Problem The drinking water abstraction at Clapham on the River Ouse is at risk from closure as a result of pollution incidents from industrial and agricultural sources.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Pollution Prevention visits to sites in the area.	NRA/ potential polluters	Reduce risk of pollutants entering the river.	Cost Pollution prevention advice is voluntary.
Maintain network of continuous automatic monitoring equipment.	NRA	Detection in changes of water quality immediately.	Cost.

ISSUE 15 FAILURE TO MEET REC TARGET ON RIVER TOVE.

Problem The stretch of the River Tove from Towcester STW to Castlethorpe fails to meet the proposed REC 2 target for Dissolved Oxygen. The available information implicates Towcester STW as the cause of the problem. The current discharge consent conditions for the works are laxer than those needed to ensure compliance with the Quality objective.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Improve effluent quality from Towcester STW.	AWS	Will achieve compliance with RQOs.	Cost.
Maintain REC 3 in short/medium term.	NRA	Protects water quality from deterioration.	Perceived relaxation of the target.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 16 FAILURE TO MEET THE REC TARGET ON CLAYDON BROOK.

Problem The stretch of Claydon Brook below Winslow STW to the confluence of the Horwood tributary fails to meet the proposed REC 3 target for dissolved oxygen.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Investigate reason for low dissolved oxygen concentrations.	NRA	Better data for decision making.	May not establish source.
Maintain REC 4 as short/medium term objective.	NRA	Protects water quality from deterioration.	Perceived relaxation of target.

ISSUE 17 FAILURE TO MEET REC TARGET ON RIVER OUZEL.

Problem The stretch of the Ouzel downstream of Leighton Buzzard to Stapleford Mill fails to meet the proposed REC 3 target for biochemical oxygen demand (BOD). The high BOD levels which caused the failure occurred in winter.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Investigate urban drainage, including sewage effluent and storm sewage.	NRA	Improved information for decision making.	May not pin point cause of high BOD concentrations.
Maintain REC4 as short/medium term target.	NRA	Protects water quality from deterioration.	Perceived relaxation of target.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 18 FAILURE TO MEET THE REC TARGET ON THE GRAND UNION CANAL.

Problem The stretch of the Grand Union canal which flows from Great Seabrook to Grafton Regis fails to meet the proposed REC 3 target for dissolved oxygen. There is only one sample point representing this stretch of controlled water.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Investigate cause of low dissolved oxygen concentrations.	NRA	Improved information for decision making.	May not establish reason
Examine possibility of additional monitoring points along the canal	NRA	Obtain more water quality information about the canal.	Cost.
Maintain REC 4 as short/medium term objective.	NRA	Prevents deterioration in water quality.	Perceived relaxation of target.

ISSUE 19 ADVERSE IMPACT OF INTERMITTENT DISCHARGES FROM COMBINED SEWER OVERFLOWS AND PUMPING STATIONS EMERGENCY OVERFLOWS.

Problem These discharges can have a significant impact on the receiving watercourse. Some CSOs and EOs operate at a greater frequency than is desirable and have an unacceptable impact on the receiving watercourse.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Uprate sewerage systems to eliminate unsatisfactory overflows.	AWS	Improve water quality.	Cost.
Uprating of pumping stations, including improved emergency storage capacity at sensitive locations.	AWS	Protection of water quality.	Cost.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 20 OIL POLLUTION INCIDENTS AND DISCHARGES OF OIL FROM SURFACE WATER SEWERS.

Problem Incidents of oil pollution are widespread throughout the catchment, but are a particular problem around the Leighton Buzzard and Milton Keynes areas. At Milton Keynes, most incidents are associated with discharges from public surface water sewers, which are controlled by AWS.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Installation of oil interceptors.	Industry/AWS	Contain oil and prevent spillage to watercourse.	Cost.
Pollution prevention visits.	NRA/AWS	Prevent oil spillages at source.	Cost. Pollution prevention advice is voluntary.

ISSUE 21 THE REDEVELOPMENT OF CONTAMINATED LAND

Problem A major consideration in the redevelopment of industrial land is the possible contamination of the site and its potential for polluting the water environment.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Identify degree and nature of contamination.	NRA Planning Authority Developer.	Increased knowledge will enable prioritization of affected sites.	May not be possible to identify contaminant. May not be able to identify all possible sites.
Agree measures to prevent pollution.	NRA Planning Authority Developer.	Protection of the water environment.	Cost

PROPOSED CATCHMENT ISSUES AND OPTIONS

5.4 WATER RESOURCES ISSUES

ISSUE 22 FUTURE DEMAND FOR ABSTRACTION FROM SUMMER SURFACE WATER

Problem Future demands for water in the Anglian Region are progressively rising. Future demand for public supply is assessed by examining predicted changes in population and consumption habits as well as the potential for demand management practices such as leakage control and metering policies. Future growth in industrial and agricultural needs are also allowed for.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Increased use of stored winter water	Licence applicants	Improved sustainability of water resources.	Subject to licence conditions
Increased abstraction from gravel and minor aquifers	NRA	Possible additional water availability	Cost of monitoring studies.
Transfer water via canal system	NRA, British Waterways	Additional Water availability	Cost

ISSUE 23 FUTURE DEMAND FOR GROUNDWATER IN THE BEDFORD OOLITE

Problem Initial monitoring studies on the Bedford Oolite indicate that the water-bearing aquifer zone is relatively thin with little storage capacity and limited recharge. Springflows from the Oolite aquifer are therefore thought to be very vulnerable to any changes in licensed abstraction patterns in the aquifer.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Further studies on Oolite aquifer and monitoring	NRA	Sustainable use of aquifer	Cost

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 24 HYDROMETRIC MONITORING NETWORK

Problem The hydrometric monitoring network in the Upper Ouse is relatively sparse. Additional monitoring may be required if additional resources resulting from increased sewage effluent flows, or from existing resources are to be used wisely for water resources purposes.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Install flow gauges to measure "artificial influences" (eg STWs)	NRA	Optimised usage of resources, improved licensing policy.	Cost
Flow gauges to monitor ungauged catchment areas	NRA	Optimised usage of resources, improved licensing policy.	Cost
Identification of sites where groundwater and rainfall measurement required	NRA	Sustainable use of resources, data for modelling studies, planning, licence determination.	Requires results of NRA R&D project on hydrometric networks

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 25 PITSTONE CEMENT QUARRY

Problem The proposal to turn the former cement quarry at Pitstone, to the south of the catchment on the Chalk outcrop, into a landfill site, or to re-open the workings for Chalk extraction may have implications for groundwater resources and quality. Renewed extraction of Chalk would lead to further dewatering of the Chalk aquifer with discharge to the Grand Union Canal.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Convert Pitstone quarry into landfill	Bucks County Council	To the Council - Allow landfill operations	Outcome of Public Enquiry - possible deterioration in Chalk groundwater quality and quantity
Re-open Pitstone quarry for Chalk extraction	Bucks County Council	To Extractors - allow industrial development	Outcome of Public Enquiry - possible deterioration in Chalk groundwater quality and quantity

ISSUE 26 HYDROLOGY OF THE OUZEL WATERSHED

Problem Significant inputs to the River Ouzel are thought to be derived from the (1) Grand Union Canal, and (2) highway runoff from new bypasses (such as Aylesbury bypass, Berkhamstead bypass and Aston-Clinton bypass). These inputs make current resource balances for the Ouzel catchment uncertain.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Increased monitoring to identify hydrological inputs to the Upper Ouzel catchment	NRA, AWS, British Waterways, IDBs	Improved management of water resources and flood warning	Cost

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 27 RISING GROUNDWATER LEVELS IN THE LOWER GREENSAND

Problem NRA monitoring has shown that in recent years groundwater levels in the Lower Greensand have risen due to decreased volumes of industrial water usage. The exact pattern and extent of this rise are not known.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Monitoring and computer modelling studies on Groundwater levels	NRA	Improved management of groundwater resources	Cost

PROPOSED CATCHMENT ISSUES AND OPTIONS

5.5 ENVIRONMENT ISSUES

ISSUE 28 RESTORATION OF DEGRADED RIVERS AND HABITATS

Problem Past river management activities and development have had an adverse impact on the physical characteristics and habitat diversity of many rivers both within the river channel and along the riparian zone, eg, the flood plain.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Proactive Conservation Projects	NRA, Riverside Owners	Improved river habitats, diversifying habitats for flora and fauna, retard degradation of habitat	Timing, access, cost
During flood defence maintenance works	NRA, Riverside Owners	As above	Timing, access, cost. As and when flood defence works carried out

ISSUE 29 MANAGEMENT OF BANKSIDE TREES

Problem Willows are a prominent landscape feature and important habitat in the Upper Ouse Catchment. Past and current land use practices have resulted in a decline in proactive tree management, for example, pollarding.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
River Corridor Surveys to Identify Trees for Management and need for planting.	NRA, Riverside Owners	Maintain prominent landscape feature, increased habitat value	Cost, need to identify areas for tree management
Proactive Planting in poor areas	NRA, Riverside Owners	As above	As above
Do Nothing			Many of the larger willows will be lost from our landscape due to lack of management

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 30 WATER LEVEL MANAGEMENT PLANS

Problem Under guidance from MAFF, the NRA and IDBs have committed to preparing Water Level Management Plans (WLMP) for SSSIs - where they are the operating authority, by 1998.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Production of Plans Felmersham Gravel Pits by March 1997 Nares Gladley Marsh by March 1998 Stevington Marsh by March 1998	Operating Authority - NRA or IDB, local authority, EN, MAFF, land owners and managers	Integrated use of water within catchment. Written management agreement for sites of conservation interest	Time, Resources, conflicting land use priorities which may impede success
Link WLMP recommendations for future action into the relevant CMP	NRA (and as above)	Added impetus to implement plans including the necessity to review the plans periodically	WLMPs are much more detailed than other entries to CMPs Responsibility for many actions lies outside NRA control Resource limitations

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 31 NAVIGATION - CANAL RIVER LINK

Issue Considerable interest has been expressed by the Milton Keynes and Bedford Canal Trust to the possibility of creating a navigation Link between the Grand Union Canal and the River Great Ouse at Bedford which would greatly extend boating opportunities between the waterways of the Midlands and South East with East Anglia.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Assessment of detailed proposals	The Trust, IWA, BW, Planning Authorities, NRA	Increased boating opportunities through greater network of waterways for pleasure craft. Opportunities for angling, recreation and commercial transport.	Water resources availability. Impacts of increased boat traffic on environment and ecology. Feasibility of boat movement through Ouse navigation, eg., size of lock. Impact on Ouse navigation.

ISSUE 32 PUBLIC RIGHT OF NAVIGATION AT FELMERSHAM

Issue There has been some discussion about the existence of a public right of navigation on the River Great Ouse at Felmersham.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Investigation of status of navigation at Felmersham.	NRA	Possible enhanced navigation	Cost, ecological implications, impact on other recreation, eg, angling. Maintenance to allow statutory navigation depth.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 33 BOATING ACCESS UPSTREAM OF BEDFORD

Problem There is some history of canoeists using the River Great Ouse upstream of Bedford although this is not currently recognised as a Navigation channel. It is necessary to obtain riparian owners permission to navigate and conflicts can arise between anglers and canoeists. A report by the Eastern Council for Sport and Recreation recommends that powered craft should not be used in the Great Ouse upstream of Bedford although some boating associations may welcome an extension to the use of powered craft.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Arbitration and access agreements	BCU, NRA, Riparian Owners, Angling Organisations, Eastern Council for Sport & Recreation.	Improved recreational access for canoeists in a scenic part of the river	Conflicts with other river users, eg, anglers and conservation interests which are not easily resolvable. Disturbance to spawning areas. Safety implications of manoeuvring around river structures.

ISSUE 34 DEVELOPMENT OF MARSTON VALE LINEAR PARK AND COMMUNITY FOREST

Problem Considerable development is proposed in this area and recreational opportunities for footpaths and water based recreation using brickpits should be sought.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA to ensure statutory consultation process with appropriate authorities.	Community Forest Project, Local authorities	Enhanced recreation and nature conservation features and opportunities	Cost and environmental impacts.

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 35 PROTECTION OF NATIVE CRAYFISH IN CATCHMENT

Problem A population of non-native signal crayfish is now well established in considerable numbers in the Thornborough area of the Great Ouse. This species can carry crayfish plague which will threaten native crayfish in downstream areas. Commercial exploitation of the signal crayfish for the table also needs monitoring.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Desktop study of species distribution within catchment	NRA, English Nature	Increased knowledge of status allowing action and management plan to be produced	Cost, time Problem of controlling non-native species spreading

ISSUE 36 MANAGEMENT OF MACROPHYTES AND EMERGENT VEGETATION.

Problem The Upper Ouse Catchment supports a diverse array of both marginal and submerged plants which form both important landscape and habitat features. These however may need to be managed for flood defence purposes and when present in large quantities can severely restrict angling opportunities.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Liaison with affected organisations when undertaking maintenance works	NRA	Maintenance of habitat diversity and increased recreational potential	Cost. Balance between flood defence/conservation and recreational needs. Restricted to when flood defence maintenance carried out.
Do Nothing			Increase flooding and restrict recreational opportunities

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 37 ENHANCEMENT AND RESTORATION OF REDUNDANT SIDE CHANNELS, BACKWATERS, MILLSTREAMS

Problem There are a considerable number of former mills and flood defence structures on the Great Ouse between Buckingham and Bedford many on the former sites of mill channels which are now either redundant or have fallen into neglect. Opportunities may exist for re-opening some of these to afford angling facilities or helping re-create wet meadows.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Look for opportunities to enhance/restore diversity of instream habitats.	NRA. Riverside Owners, Conservation organisations	Increased habitat diversity and potential for increased recreation	On-going maintenance responsibility would need to be established. Cost, Riparian Owners agreement. Subject to Capital bids.
Do Nothing			No increase in habitat diversity or increased recreation potential

ISSUE 38 BIODIVERSITY (SPECIES)

Problem Decline/possible decline of biological diversity within catchment area.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
NRA to liaise with relevant external organisations to produce Action Plans	NRA, English Nature, RSPB, Wildlife Trusts	Protection of native species wildlife habitats	Cost, time, collection of relevant information
Do nothing			Native species and habitats will continue to decline

PROPOSED CATCHMENT ISSUES AND OPTIONS

5.6 DEVELOPMENT ISSUES

ISSUE 39 STRUCTURE AND LOCAL PLANS

Problem The broad objective of catchment management planning is to conserve and enhance the total water environment through effective land and resource management. However, the NRA has very little control over the mechanisms which determine land use change on a catchment wide basis, this being the responsibility of local planning authorities through implementation of the Town and Country Planning Acts. In its role of consultee, the NRA seeks to influence policies in statutory (and non-statutory plans) to conserve and enhance the water environment and associated lands.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Timely (earliest possible) and authoritative input to development planning	Local Planning Authority, NRA	Protection and enhancement of the water environment	Time, Resource constraints, increased risk to the water environment
Forge closer links with Development Plans and CMPs	NRA, Local Planning Authority	Full consideration of water issues	Differing CMP and planning schedules, time, resources
Do Nothing			Impact on Water Environment

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 40 NEW ROADS AND BYPASSES

Problem The impact that road construction has on the water environment can be considerable.

From a water quality viewpoint, there are two concerns regarding highway drainage and its potential to pollute both surface and groundwater:

- diffuse contaminants, ie, tyre rubber, de-icer, vehicle emissions, etc;
- large spillages from road traffic accidents.

Water resources may be affected both during road construction and in the longer term. The use of deep cutting to reduce the visual impact of the road can impact on a resource in terms of groundwater flow and dewatering. The road forms an impermeable barrier thus reducing groundwater recharge and therefore reduces resources.

The efficient discharge of surface water from road carriageway and verges to a watercourse can cause or exacerbate flooding. Roads crossing flood plains can result in increased flood levels.

Intrusion, pollution and the change in water course flow regimes can drastically affect the ecosystem.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Early consultation and negotiating with road developers	Developer, Highways Agency, County Council, NRA	Optimum protection to water environment, flood and pollution prevention	Cost, time, design, political

PROPOSED CATCHMENT ISSUES AND OPTIONS

ISSUE 41 SURFACE WATER RUN-OFF FROM MILTON KEYNES

Problem In general, surface water run-off from the new town of Milton Keynes is balanced such that the land drainage situation downstream is no worse than that existing prior to development. Certain areas to the east of the designated development area drain directly to Broughton Brook, a River Ouzel Internal Drainage Board watercourse which discharges into the River Ouzel, north of Willen Lake. The problem is that the capacity of Broughton Brook is insufficient to accommodate the maximum surface water sewer discharge from this eastern development area. The consequence of which will be the unacceptable flooding of development areas and adjacent agricultural land.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
Increase capacity of Broughton Brook	R. Ouzel IDB, AWS, NRA, New Town Commission	Enable development to take place with acceptable flood risk and maintain agricultural land flood risk	Cost, maintenance May make down stream flooding more severe
Surface Water discharge attenuation	R. Ouzel IDB, AWS, NRA, New Town Commission	As above	Cost, maintenance
Do Nothing - do not offer land up for development			

CATCHMENT USES AND STATUS

The following different uses will be briefly described below:

- Flood Defence
- Water Resources
- Recreation and Navigation
- Water Quality
- Environmental Features
- Land Use and Development Control.

If you are interested in knowing more about these and other uses, please contact the Authority for a copy of the full Consultation Report.

FLOOD DEFENCE

Historical flooding in this catchment has affected urban housing, industrial sites, roads and agricultural land in the catchment. Various improvement works have been undertaken to both control structures and the river channel since 1947.

Flood Protection schemes have been undertaken in Towcester and Buckingham



CATCHMENT USES AND STATUS

in 1970s and 80s. However, Leighton Buzzard and Newport Pagnell experience flooding difficulties, most recently in September 1992.

The NRA is responsible for stretches which are termed "Main River". However, there is an increasing number of non-main river urban flooding difficulties, eg, Tiffield, Thornborough and Ravenstone. The necessary powers to carry out works lie with the Local Authorities. The Upper Ouse catchment also contains the Ouzel and Buckingham Internal Drainage District.

WATER QUALITY

According to the NRA's general quality assessment (GQA - scheme for periodic reporting), the majority of river stretches are graded B or C - indicating good to fair quality. Most notable improvements have been recorded in the river ouzel following recent improvements at Dunstable Sewage Treatment Works (STW). In contrast, the Grand Union Canal is classified as grade D - fair water quality



CATCHMENT USES AND STATUS

although the river is biologically healthy.

Within the catchment, there are a number of STWs which discharge effluents into the rivers predominantly of domestic origin. The largest works is Cotton Valley which serves Milton Keynes. Small private STWs and septic tanks serve rural communities.

There are very few industrial discharges to controlled waters. The largest is from Harcros Pigments at Deanshanger.

The upper stretches of the River Great Ouse and the River Ouzel support small populations of trout which require good water quality, eg, at Water Stratford. The Upper Ouse supports an excellent fishery class A for coarse fish with stretches of the rivers Great Ouse, Ouzel, Tove, Claydon and Padbury Brooks being designated under the EC Fisheries Directive.

A large proportion of the catchment upstream of the Clapham abstraction is a proposed Nitrate Vulnerable Zone.



Flooding at Leighton Buzzard, September 1992

CATCHMENT USES AND STATUS

WATER RESOURCES

The NRA aims to manage water resources to achieve the right balance between the needs of the environment and those of the abstractors.

Rainfall is highest to the west of the catchment in “upland” areas at 670mm falling to 570mm a year in the east. Water is abstracted from the ground, spring sources and rivers for a variety of uses (see below). Abstraction are regulated by the NRA, under certain circumstances by abstraction licences.

- **Potable (Drinking) Water Supply Use**
67% of the total volume licensed for abstraction is used for public water supplied principally by Anglian Water Services. In addition, water from Grafham Water (Reservoir) - found outside this CMP area, is used to supply a large part of the catchment including Milton Keynes.
- **Agriculture (Stock watering, crop spraying, fish farms, irrigation) Use**
2% of the total volume of water licensed for abstraction.
- **Industrial (processing, cooling, sand and gravel washing) Use**
25% of total volume of water licensed for abstraction. Industry is centred around the main urban areas of the catchment and is largely light manufacturing and engineering based. In addition to this, much of the demand for water is supplied by the water companies.

There is an existing high demand for water for drinking, industry and agriculture and this demand is increasing. Future development (of water resources) must not cause any unacceptable detriment to the environment. However, as the population of the area continues to increase, so will the volume of water returned to the rivers through discharges from the STW (ie, more available resources).

ENVIRONMENTAL FEATURES

It is recognised that the environmental value of certain channels has been adversely affected by past land drainage activities. These include freshwater riverine habitats (or flora and fauna within the river corridor) and wetland sites which are often related to groundwater or spring flows.

The catchment contains 15 water-dependent (out of 33) sites of special scientific interest and numerous county wildlife sites.

CATCHMENT USES AND STATUS

The rivers in the catchment meander and display riffle and pool sequences as they flow through improved and semi-improved pasture land with a variety of marginal vegetation, eg, scrub, bur-reed, reed canary grass. In-channel vegetation include water crowfoot and dropwort.

An analysis of the status of these rivers has ascertained that some 58% of the watercourses habitat should be conserved, 30% requires enhancement and 12% requires restoration.

RECREATION AND NAVIGATION

ANGLING & FISHERIES CONSERVATION

The NRA undertakes a rolling programme of fish population surveys. A total of 24 fish species have been recorded within the Upper Ouse catchment - predominantly, riverine coarse fisheries (with a small amount of Brown Trout).

Angling is undertaken along the rivers in the catchment along with opportunities on stillwaters and the Grand Union Canal. Fishing is controlled by popular clubs including the Buckingham & District Angling Association, Deanshanger Angling club, Newport Pagnell Fishing Association, etc. Popular species include roach, dace, chub and barbel. Much of the catchment supports fishery biomass class A or B which indicates high quality.



Ravenstone Mill on the River Ouse

CATCHMENT USES AND STATUS



Control structure, River Ouse at Turvey

NAVIGATION, BOATING AND AMENITY

The only statutory navigation within the CMP area is on the Grand Union Canal managed by British Waterways (between Stoke Bruene and Ivinghoe) which is popular with pleasure cruisers and narrow boats. Canoeing has historically taken place between Newport Pagnell and Bedford and requires the consent of riparian owners.

Water-based recreation takes place on former mineral extraction sites along the river valley and on Milton Keynes' balancing lakes, eg, sailing on South Willen Lake.

Around Milton Keynes access to the water environment is encouraged and managed by the Milton Keynes Parks Trust and includes footpaths close to the rivers Great Ouse, Ouzel and the Grand Union Canal where the towpath provides a long distance footpath.

LAND USE AND DEVELOPMENT CONTROL

The control of development is the responsibility of local government, eg, councils and this is facilitated by the production of statutory plans, eg, Structure Plans, Local plans. The NRA is a statutory consultee and advises on all proposals which may have an impact on the water environment.

The most prominent feature of this rural "upland" catchment is the new city of Milton Keynes - it is the fastest growing urban area in the UK and the major centre for employment, business, shopping and recreation.

CATCHMENT USES AND STATUS



The catchment will be subject to a number of road (improvement) schemes including the M1 widening, Bedford Western Relief Road and a series of Bypasses.

All future development in the catchment will be confined to established towns and all these settlements are situated on or adjacent to watercourses and are, therefore, at risk from flooding. New development in the floodplain is resisted by the NRA.

Some 126,000 ha of the Upper Ouse catchment is used for agriculture - arable (cereal) cropping predominates. The majority of farms in this catchment are likely to occupy good to moderate land quality.

Agricultural land use has fallen over the last decade and there has been an increase in set-aside land in response to Common Agricultural Policy reform.

CATCHMENT USES AND STATUS

CATCHMENT FACTS

Area		1487 km ²
Population 1996		381,900
Predicted 2006		444,600
Ground Levels	Min Level	24 m AOD
	Max Level	243 m AOD
Geology	South East	Lower Greensand, Gault Clay and Chalk.
	Central	Jurassic clays - Kimmeridge, Ampthill and Oxford Clay.
	North West	Lias; Cornbrash and Oolite.
		(% of catchment area)
County Councils	Northamptonshire	22%
	Buckinghamshire	53%
	Bedfordshire	21%
	Oxfordshire	4%
		(% of catchment area)
District & Borough Councils	Daventry	0.4%
	Milton Keynes	22%
	Aylesbury Vale	31%
	Bedford	10%
	South Beds.	6%
	Mid Beds.	5%
	Cherwell	4%
NRA Organisation	Anglian Region	
	Central Area Administrators	The catchment of the River Great Ouse from Brackley to the Sea.
	Catchment South Office Administrators	The River Great Ouse upstream of Hermitage Lock, Earith.
Water Companies		Anglian Water Services Limited, Thames Water Utilities Three Valleys Water Company

C A T C H M E N T U S E S A N D S T A T U S

Major Sewage Treatment Works	Brackley, Cotton Valley (Milton Keynes), Dunstable, Leighton Linslade, Towcester			
Internal Drainage Boards	Buckingham, River Ouzel			
Main Towns (Populations for 1996)	Milton Keynes	173,200	Buckingham	9,800
	Leighton Buzzard	33,600	Brackley	9,360
	Newport Pagnell	15,700	Towcester	6,800
Length of statutory main river (maintained by NRA)	225.5 km			
Embanked main river	0 km			
Length of navigable river (Grand Union Canal)	53 km (approximately)			
Water Quality	GQA grades	Length of river in km		
	A (excellent)	0		
	B (good)	143		
	C (fair)	139		
	D (fair)	60		
	E (poor)	0		
	F (bad)	0		
Water Quality	Biological Survey 1994			
	A (excellent)	257	C (fair)	8
	B (good)	86	D (poor)	0
Salmonid (Game) fishery	4 km			
Cyprinid (Coarse) fishery	114 km			
Sites of Special Scientific Interest (SSSIs)	33			
Water dependent SSSIs	15			
Water Related Scheduled Ancient Monuments	48			

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



NRA EMERGENCY HOTLINE

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Help the
NATIONAL RIVERS AUTHORITY
to protect the
water environment



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YOUR VIEWS

We would be grateful for your comments on the following to help us plan a future for the Upper Ouse catchment and make improvements to the CMP process.

- Have we identified all the issues? If not please tell us
.....
.....
.....

- What ideas do you have about the issues raised or the options stated?
.....
.....
.....

- Please add any other comments you wish to make on this document and the future of the catchment
.....
.....
.....

- How did you hear about this document and get to see it?
.....
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- What views do you have on this document and how the NRA has undertaken consultation?
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- Please put your name and address or affiliation below
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