

# local environment agency plan

## NORTH NORFOLK

### CONSULTATION REPORT SUMMARY

JUNE 1996



ENVIRONMENT  
AGENCY

## INTRODUCTION

Local Environment Agency Planning aims to create a consistent framework within which all the Agency's functions and responsibilities can be applied in a co-ordinated and sustainable manner within a particular catchment area.

The current state of the environment 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 actions to resolve them, are presented as issues in a table at the end of this brochure.

## WHAT IS LOCAL ENVIRONMENT AGENCY 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, land, and air environments and the interests of users and beneficiaries must be balanced.

Catchment management involves the Agency working with many people and organisations and using its authority to ensure that the natural environment is protected, and where possible improved, for the benefit of present and future users.

The process is open and integrated to optimise the overall future well-being of people and ecosystems through the pro-active management of the environment. It is evolving from the former water based National Rivers Authority Catchment Management Planning process and embraces the wider Agency remit to regulate waste and industrial air pollution.

This Local Environment Agency Plan is one of the Agency's first



*Letheringsett Mill - a restored water mill on the River Glaven*

opportunities to bring together the policies, objectives and options for North Norfolk for overall environmental improvement. It must be emphasised that this plan is not an end in itself. Its purpose is to provide a comprehensive local guide to the present status and vision for the catchment. It is the essential first step in providing the basis for drawing up a plan of action.

## 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 land, air, or water environments in the catchment area which you think should be examined by the Agency.

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

*Dr Jonathan Wortley, Planning & Customer Services Manager, Environment Agency, Anglian Region - Eastern Area, Cobham Road, IPSWICH, Suffolk IP3 9JE.*

Comments in writing, must be received by 1st October 1996.

## THE ENVIRONMENT AGENCY

The Environment Agency is one of the most powerful environmental regulators in the world. It provides a comprehensive approach to the protection and management of the environment by combining the regulation of waste to land, water, and industrial releases to air. Its creation on 1st April 1996 was a major and positive step, merging the expertise of the National Rivers Authority, Her Majesty's Inspectorate of Pollution, the Waste Regulation Authorities and several smaller units from the Department of the Environment.

The Agency takes a much wider view of environmental regulation than was possible for its predecessors, though remaining an independent, impartial and firm regulator in their best traditions.

Nationally, the Agency has responsibilities for:

- Regulating over 2000 industrial processes with the greatest polluting potential, using the best available techniques not entailing excessive cost to prevent or minimise pollution.
- Advising the Environment Secretary on the Government's National Air Strategy, and providing guidance to Local Authorities on their Air Quality Management Plans.

ENVIRONMENT AGENCY



089879

- Regulating the disposal of radioactive waste at more than 8000 sites, including nuclear sites, the keeping and use of radioactive material and the accumulation of radioactive waste at non-nuclear sites.
- Regulating the treatment and disposal of controlled waste, involving 8000 waste management sites and some 70,000 carriers so as to prevent pollution or harm to human health.
- Implementing the Government's National Waste Management Strategy for England and Wales in its Waste Regulation work.
- Preserving and improving the quality of rivers, estuaries and coastal waters through its pollution control powers, including 100,000 water discharge consents and regulation of more than 60,000 sewage works.
- Action to conserve and secure proper use of water resources, including 50,000 licensed water abstractions.
- Supervising all flood defence matters, involving over 43,000 kilometres of defence works.
- Maintenance and improvement of salmon, trout, freshwater and eel fisheries, including the issue of some 1,000,000 angling licences.
- Conserving the water environment, including areas of outstanding natural beauty or environmental sensitivity extending to nearly four million hectares, and promoting their use for recreation where appropriate.
- Maintaining and improving non-marine navigation, including licensing of some 40,000 boats.
- Regulating the management and remediation of contaminated land designated as special sites.
- Providing independent and authoritative views on a wide range of environmental issues which may involve analysis and comment beyond the Agency's specific regulatory remit.
- Liaison with international counterparts and governments, particularly within the European Union, to help develop consistent environmental policies and action worldwide.

## THE CATCHMENT

The North Norfolk Local Environment Agency Plan area comprises a relatively narrow strip along the North Norfolk coast, together with its adjacent waters in the Wash and the North Sea. The freshwater rivers are the Hun, Burn, Stiffkey, Glaven and Mun, together with their tributaries. The Plan lies wholly within the County of Norfolk, and embraces parts of the Local Authority areas of North Norfolk District Council and the Borough of King's Lynn and West Norfolk.

## CATCHMENT FACTS

<b>GENERAL</b>	Land Area	522 Km <sup>2</sup>
	Population	24,967 (mid 1993)
<b>WATER RESOURCES</b>	<b>Public Water Supply Abstractions</b>	
	There are four licensed Public Water Supply abstractions at: Wighton, Houghton St Giles, Glandford, Sheringham and Mundesley (the latter two sites being under one licence).	
<b>WATER QUALITY</b>	Length (km) of River in General Quality Assessment classifications (1992-1994)	
	CLASS A 14	CLASS B 47.5
	CLASS E 8.5	CLASS F 0
	CLASS C 3.5	CLASS D 0
	CLASS A 10.5	CLASS B 0
	CLASS C 0	CLASS D 0
<b>INDUSTRIAL POLLUTION PREVENTION</b>	There are three Integrated Pollution Control authorizations for the gas terminals at Bacton.	
<b>WASTE MANAGEMENT</b>	One major landfill site at Edgefield (34,000 tonnes per annum).	
<b>FLOOD DEFENCE</b>	Length of Designated Main River:	
	Fluvial	75 km
	Tidal	18 km
	Length of Environment Agency maintained tidal defences	38.5 km
<b>CONSERVATION</b>	Numbers of:	
	Sites of Special Scientific Interest	24
	National Nature Reserves	3
	Ramsar Sites	1
	Special Protection Areas	2
	Candidate Special Areas of Conservation	3
	County Wildlife Sites	87
<b>NAVIGATION</b>	The Anglian Region of the Environment Agency has no statutory Navigation responsibility within this plan area.	



## LAND USE AND DEVELOPMENT

Land use is predominantly agricultural. Approximately 80% of the 43,000 hectares of agricultural land in the plan area is of Grades 1, 2 or 3a, which is considered to be of the best and most versatile quality.

No major growth is envisaged in either housing provision or industry. Tourism plays a major role in the catchment, and servicing this need employs a significant proportion of the local population.

## WATER QUALITY

The supply of good quality water for public water supply is of major importance. Abstractions of water are undertaken by Anglian Water Services at Wighton, Houghton St Giles, Glandford, Sheringham and Mundesley.

The national chemical General Quality Assessment survey (1994) showed that chemical water quality in the plan area was generally very good. This showed improvements on the 1990 survey with significant upgrades in classes on the upper River Burn, the lower Burn, and the River Glaven between Letheringsett Mill and Glandford Ford.

Coastal surveys have revealed elevated nutrient levels around the North Norfolk coast. In addition, summer algal blooms occur. Coastal water quality models suggest that the coastal water quality is strongly influenced by the Wash and Humber estuaries.



## INDUSTRIAL POLLUTION PREVENTION

The following two sub-sections outline the responsibilities for environmental regulation, incorporated into the Agency from the former duties of Her Majesty's Inspectorate of Pollution:

### INTEGRATED POLLUTION CONTROL

Within the plan area, there are only three Integrated Pollution Control processes authorised by the Agency under part 1 of the Environmental Protection Act 1990. These are the gas terminals at Bacton and represent the only significant industrial releases to the environment within the area. The processes release quantities of volatile organic compounds (mainly methane), oxides of nitrogen and oxides of carbon (from combustion) to air. In the case of Phillips Petroleum UK Co Ltd there is also a release of sulphur dioxide and a small quantity of hydrogen sulphide to air (usually only in the winter months). Each process discharges effluent to coastal waters, containing small quantities of glycol and methanol with even smaller quantities of other organics. Other wastes are disposed of outside of the plan area by specialist contractors.

### RADIOACTIVE SUBSTANCES

The only current authorizations are for the accumulation and disposal of naturally occurring radioactive materials that are removed from some natural gases at the Bacton gas terminals. This waste is disposed outside of the plan area in specified depositories. There are only a few registrations within the area. These are for measuring instruments and self illuminating signs which at the end of their useful life are required to be disposed of by returning the source to the manufacturers of such equipment.



## WASTE MANAGEMENT

The Waste Management function of the Agency issues licences permitting the keeping, treating, and disposal of waste, which ensure that these activities neither harm the environment or human health. Prior to the formation of the Environment Agency these responsibilities were undertaken by Norfolk County Council as the Waste Regulation Authority.

There is one major landfill site within the plan area receiving industrial, commercial and household waste. The site at Edgefield receives 34,000 tonnes per annum of these types of waste from Sheringham, Cromer and Holt, as well as more rural areas. The site began operation in 1988 and has been closely monitored ever since. There is a network of seventeen groundwater monitoring boreholes both down gradient and up gradient of the site. The boreholes are sampled at quarterly intervals and analysed for a range of parameters agreed between the Agency and the site operator. Present evidence indicates that the site is not impacting on the groundwater. On completion, each phase of the site will be capped with an impermeable material to prevent water ingress and therefore reduce the potential for the site to produce leachate.

## WATER QUANTITY

The Agency has to balance the varied and competing needs for water resources. These include human needs, such as potable water supply, industry and agriculture, as well as those of the water environment for rivers, springs and wetlands.

This balance is reached by firstly determining the volume of water which recharges

each catchment area and then setting aside a volume of this balance for environmental needs. The remaining quantity, in theory, is available for abstraction although applications are subject to further strict environmental checks into the likely local effects. The Agency has the responsibility of managing water resources in a sustainable and effective manner, (ensuring that long term abstractions do not exceed long term replenishment), to achieve the right balance between the needs of the environment and those of the abstractors.



*River Burn, North Creake*

Where catchments are fully committed, an abstraction licence application cannot be considered. Groundwater resources within the Rivers Stiffkey, Glaven and Mun sub-catchments are fully committed. The groundwater resources in the sub-catchments of the Rivers Hun and Burn in contrast, still have nominal water available for licensing, subject to the licence application passing strict environmental criteria. There is no summer surface water available. Some additional surface water may be available during winter periods when river flows are naturally higher. Abstractors are encouraged to store this in reservoirs for summer use.



## FLOOD PROTECTION

Throughout history, the danger of inundation by North Sea surge tides has been an ever-present threat to the people living in low lying areas along the coast in North Norfolk. Not only tidal and freshwater flooding events, but erosion and landslides have threatened their homes, livelihood and sometimes, their lives.

Major surges in 1953, 1978, and more recently in 1993 and 1996, have demonstrated the continuing need to provide and sustain a framework of sea defences to protect people and property, in areas at risk of tidal inundation.



The Agency is responsible for 38.5 kilometres of sea defences between Old Hunstanton and Kelling. These range from soft defences such as sand dunes, to hard engineering defences at Wells Quay. The defences are not continuous, and only protect low lying land subject to tidal flooding.

The narrow strip of land along the North Norfolk Coast, together with river valleys running inland and parts of the coastal villages are below high tide levels. These areas are protected against flooding by a combination of man-made earth embankments, natural sand dunes and shingle banks.

Historically, development within the flood plain has caused a risk of fluvial flooding to some properties. The flood plain is an essential part of the flood protection regime, and development and infilling can reduce its flood storage capacity. People and property remain vulnerable in some areas of urban development at Little Walsingham, Stiffkey, North and South Creake, Burnham Thorpe, Wiveton, and Mundesley.



*Flooding of coastal road at Salthouse*

## CONSERVATION

The value of this North Norfolk area for nature conservation lies in the intricate mosaic of wildlife habitats, from coastal grazing marsh, to reedbeds, heathland and woodland. Many of these habitats support rare and threatened plants and animals, some of national and international importance. The majority of the coast has been put forward as a candidate Special Area of Conservation (SAC) in recognition of the international importance of this area. The land below high water mark lies within the Wash and North Norfolk Coast candidate SACs. The majority of the land



above high water mark and within the North Norfolk Site of Special Scientific Interest (SSSI) lies within the North Norfolk Coast and Gibraltar Point Dunes candidate SACs.

There are a number of small rivers in this catchment all of which flow from the higher ground in the south, where the channels are small and possess a number of valuable physical features such as riffles, pools and earth cliffs. In the lower reaches, the rivers cross the flat coastal margin and channel features are largely absent but marginal vegetation becomes locally abundant. Adjacent alder carr and willow woodlands, marshes and reed swamp are particular features of this catchment. Whilst only relatively small areas of the river catchments are of national importance in terms of their ecology (i.e. SSSIs), there are many County Wildlife Sites (CWS).

## FISHERIES

The catchment has a diverse range of fisheries with varying fish communities and species. Sections of the Rivers Stiffkey, Glaven and Burn have established brown trout populations which are supplemented by stocked fish. The fisheries of the Stiffkey and Glaven are dominated by eel with significant numbers of brown trout and bullhead found in the Glaven. Nine to ten species are regularly recorded in these rivers during routine surveys. Both rivers have good populations of brook lamprey, a species listed in the Habitats Directive. In comparison, the Burn and the Hun have relatively poor species diversity.



*Habitat improvements for fisheries on the River Stiffkey at Stiffkey*

Lakes and ponds supporting fish stocks occur throughout the area. Little precise data exists on these stocks, although it is clear that they represent an important resource. North Norfolk supports several commercially important shellfisheries. Well known is the edible crab, and a thriving lobster industry is centred around Cromer. Bivalve molluscs (mussels, cockles, and oysters) are also commercially harvested.

## RECREATION

The recreational and amenity potential of the Norfolk coast has long been recognised and tourism is a major and growing industry. The influx of visitors, particularly in the summer season, dramatically increases the population of coastal towns and villages. Most visitors take part in quiet recreational activities such as walking, angling, horse riding, birdwatching, swimming, and beach recreation, but many also enjoy more active pursuits such as water sports and cycling.

The Norfolk coast has a national value and reputation for birdwatching, focusing on its well known Nature Reserves at Titchwell Marsh, Blakeney Point, Cley, and Scolt Head Island.

Freshwater angling takes place on the rivers and inland stillwaters within the catchment. There are a number of angling clubs whose members fish on waters in the area.

The coast provides excellent locations for sailing, windsurfing and powered water sports. Access points for water recreation are limited and are generally confined to coastal population centres.



*Catching crabs in Blakeney Harbour*

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

### Issue No 1: In river needs are not quantified

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Await outcome of National & Regional R&D Studies on defining methodologies to set RFO's	Environment Agency	Better understanding of in-river needs  Nationalised standardised approach identified for setting RFOs  Improved resource management	Local issues could be "masked" by National approach
2. Carry out ecological and in-river needs studies to develop RFO's in particular rivers, following production of the Anglian Region Methodology	Environment Agency	Enables better understanding and hence protection of river ecology  Improved resource management  Refinement of water resources availability assessments  Biological targets may be improved  Water quality conditions on discharge consents improved  Regional consistency	Skilled resource and timescale  Reduction in current RMF may impact on water quality  Increase in current RMF would impact on abstractors
3. Continue with present policy	Environment Agency	Cost saving  Consistency with past policies	Inability to assess adequately water resource availability  Need to rely on existing RMF which may be inappropriate  Actual flows in some stretches may be inadequate

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

### Issue No 2: River flows in some North Norfolk Rivers are perceived to be unacceptably affected by licensed abstractions

River flows during summer and drought periods in the Burn, Glaven and Mun are perceived by some to have been significantly reduced in quantity since the 1970's.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
<p>1. Set river flow objectives (RFOs) defining the actual river requirements</p>	<p>Environment Agency</p>	<p>Improved resource management</p> <p>Provides better understanding of in-river needs</p> <p>Confirm/identify stretches of river concerned</p>	<p>Cost of investigations</p> <p>Timescale - conflict in study priorities</p> <p>No progress can be made until review complete</p> <p>Much data collection required</p> <p>Any reduction in present mrf's would have serious implications on discharge consents and the water environment</p>
<p>2. Carry out hydrogeological investigation (possible model, or use of Scot Kirk Patric Methodology) to improve the understanding of aquifer/surface water interaction and effect of abstractions on river flows</p>	<p>Environment Agency</p>	<p>Accurately quantify the effects of abstractions on river flows</p> <p>May provide predictive tool to aid WR management</p> <p>Refine water resource balances (using RFOs)</p>	<p>Competing priorities - Cost may outweigh environmental benefits (Money may more usefully be spent elsewhere)</p> <p>May still require RFO's to be established</p>

*Continued overleaf*

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

### Issue No 2 continued

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
3. Continue present policy.	Environment Agency	Maintain consistency in Region, fair to all. Licences issued where no environmental detriment proven	Public concern likely to continue. The Agency will continue to put large amounts of time into discussions
4. Refuse all future licence applications until RFOs have been quantified (Issue No 1 and option 1 of Issue No 2)	Environment Agency	Maintain the status quo until further studies carried out	Applicant can appeal to DoE. The Agency must be able to justify its decisions on appeal, based on "current understanding"
5. Limit abstractions during summer periods	Environment Agency	Reduce impact on environment during low flow periods	<p>Summer period is when water is needed</p> <p>Cost: Agency would have to compensate abstractors for reduced entitlement</p> <p>May be ineffective</p> <p>Any control would have to be initiated very early due to delayed response of aquifers to groundwater</p>

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

### Issue No 2 continued

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
6. Provide river support	Environment Agency/ Abstractors	Flows maintained during 'stress' periods	Water abstracted may be at expense of river flows during other periods in the year  May need several bores along river if water is lost through the bed  Cost
7. Line a section of river in affected stretches	Environment Agency	Aesthetics of the river flowing may be improved  Limited water lost from river	Un-natural  Cost  Aesthetics of lining material may be unacceptable
8. Revoke some or all licensed abstractions	Environment Agency	May solve problem of low flows if affected by abstraction	May not resolve low flow problems  Cost in compensating licence holders Affect existing businesses/ livelihoods

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

Issue No 3: A number of river stretches in this catchment fail to achieve their existing River Ecosystem target class

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Review location of sample point to assess stretch compliance	Environment Agency	Obtain more appropriate data to assess compliance	Loss of long term data trends.
2. Review appropriateness of long term target assigned to stretch	Environment Agency	More appropriate to local conditions	Changing targets causes confusion to customers
3. Assess the impact of effluents on downstream water quality	Environment Agency	Ensure appropriate short and long term targets	Unable to change consent conditions within present planning horizon

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

Issue No 4: Catchment areas for wetland sites of conservation value need to be identified

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Environmental studies at sites of particular concern	Environment Agency/ WCO's/ Conservation Bodies	Better hydrological understanding of wetland behaviour  Provides effective protection to wetlands  Improved management opportunities	Timescale and cost  Possible lack of National consistency in approach  Possible implications for existing abstractors  Threat/location unknown
2. Use BGS methodologies for defining potential risk to wetlands	Environment Agency	Consistent approach  Cheaper than site specific studies	Methods unproven and not agreed by ecologists and hydrogeologists  Varying ecology and hydrogeology may make experience related decisions, based on observing other wetland sites inappropriate
3. Abstract and monitor	Environment Agency/ Developer	Observed changes are more convincing  Useful where impact is not certain	Effects may be too small to observe  May potentially damage ecology in short term  Worst case (drought) may not be experienced during temporary period. Therefore worst case scenario not observed, (but could be deduced)

*Continued overleaf*

# ECOLOGICAL AND ENVIRONMENTAL NEEDS

Issue No 4 continued

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
4. Make assessment using methods based on practical experience	Environment Agency/ Developer	Simple and quick	Not always accurate  Rough guide  Not environmentally acceptable  Impact should be proven scientifically
5. Expand hydrological and ecological monitoring of wetlands	Environment Agency/ Conservation Bodies	Obtain background data at larger number of sites  Gain a better understanding of sites hydrogeology and ecology	Timescale  Cost  Lack of data accuracy
6. Continue present policy of taking precautionary approach in licensing, using theoretical techniques, empirical assessments and field monitoring to evaluate risk in association with time limited licences	Environment Agency/ Developer	Financial and time resource input only when necessary  Err on side of caution  Any effect will be temporary and if detrimental, licence will not be re-issued without agreed mitigation or remediation	Risk that temporary licence granted without fully understanding hydrogeology of wetland  Environmental and hydrological changes may not be observed in temporary licence period

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

Issue No 5: There is a lack of habitat diversity both within the rivers and their floodplains

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Identify and implement river/ floodplain restoration projects and habitat enhancements	Environment Agency	Fulfils duties under legislation to further conservation	Cost (for some schemes)
2. Identify specific enhancements to improve fish habitat and spawning sites	Environment Agency	Fulfils duties under legislation to maintain, improve and develop fisheries	Cost (for some schemes)
3. Identify the need to provide fish passes for access through mills, weirs, tide flaps and other control structures	Environment Agency	Fulfils duties under legislation	Cost

Issue No 6: Identify where the Environment Agency should assist in the implementation of agreed local and national Biodiversity Action Plan targets for relevant water dependent habitats and species

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Identify and agree targets and action plans with local biodiversity group	Environment Agency/ EN/ LAs/ Conservation Organisations	Compliance with Environment Agency conservation duties	Failure to comply with the UKs commitment to the "Convention on Biological Diversity"
2. Identify necessary Environment Agency activities or procedures to implement targets	Environment Agency	Compliance with Environment Agency conservation duties	Failure to comply with the UKs commitment to the "Convention on Biological Diversity"

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

**Issue No 7: Ensure that Environment Agency activities comply with new and existing EU Directives concerning nature conservation**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Where appropriate ensure sustainable protection of habitats through Shoreline Management Plans and future sea defence activities	Environment Agency	Compliance with Environment Agency legislation	Failure to comply with Environment Agency legal duties
2. Investigate, with partners, the development of compensatory habitat where habitats may be lost due to the implementation of the SMP's preferred options and subsequent sea defence works	Environment Agency	Compliance with Environment Agency legislation	Failure to comply with Environment Agency legal duties
3. Develop a programme to review all discharge consents and abstraction licences that may potentially impact on the North Norfolk SAC and Norfolk Valley Fens SAC (subject to guidance from National Head Office and DoE)	Environment Agency	Adherence to international law	Staff resources implication and cost of any subsequent actions
4. Where required, and in close liaison with English Nature, undertake Environmental Assessments to identify the impact of Environment Agency activities on the North Norfolk SAC and Norfolk Valley Fens SAC.	Environment Agency	Mitigate any harmful activities that may impact on SACs	Staff resources implication and cost of any subsequent actions

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
5. Liaise closely with English Nature, and other consultation bodies, over all operations and activities that may influence the SACs	Environment Agency/ EN	Compliance with relevant legislation  Ensures ecological acceptability of all Environment Agency actions	Failure to comply with legislation and potential damage to important sites
6. Do nothing			Failure to comply with national and international legislation

**Issue No 8: Ensure water levels are managed appropriately on all important wetland sites where the Environment Agency is responsible for the control structures or influences water levels**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Draw up Water Level Management Plans (WLMPs) for wetlands, according to EN priorities and MAFF procedures	Environment Agency where it is the operating authority	Complies with MAFF requirements for WLMPs  Conservation of important wetlands  Replaces verbal arrangements with formal agreed and written management plan	Cost - need for additional resources
2. Do nothing			Failure to meet MAFF requirements  Wetlands potentially damaged through inappropriate water level management

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

**Issue No 9: Investigate, and where possible ameliorate, failures in fishery biomass targets**

A number of river stretches in the upper Glaven fail to reach their fishery target. These require investigation and the identification of remedial measures. At some sites remedial measures may already be covered in Issue No 5.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Investigate failures in achieving fisheries targets and identify remedial measures	Environment Agency	Complies with legislation	Potential deterioration in fishery
2. Where appropriate implement remedial measures	Environment Agency	Improved fishery	Cost

**Issue No 10: There is a need to assess and where appropriate protect the ecological status of headwaters**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Assess the level of data on headwater and identify priorities for completing species level surveys of selected headwaters	Environment Agency	Fulfilment of conservation duties Protection of riverine biodiversity	No understanding of importance of headwaters or the need/mechanisms to protect them
2. Identify a strategy for the protection of headwaters	Environment Agency	Fulfilment of conservation duties Protection of riverine biodiversity	No understanding of importance of headwaters or the need/mechanisms to protect them

## ECOLOGICAL AND ENVIRONMENTAL NEEDS

Issue No 11: Monitor the netting of sea trout along the Norfolk coast to identify unlawful activity and ensure the long term sustainability of the East Coast Salmonid Fishery

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Increase bailiff activity	Environment Agency	Likely to detect unlawful activity  Better opportunities to liaise with licensed netsmen, creating greater awareness of fishery and problems	Cost and resources
2. Continue present policy	Environment Agency	No increase in costs and resources  A level of enforcement is maintained	The level of enforcement may be inadequate
3. Do nothing	Environment Agency	No cost or resource implications	Possible increase in illegal activity  No liaison with licence holders  Long term damage to stocks

## HUMAN NEEDS

### Issue No 12: Concern over bacterial contamination of the waters in Blakeney Harbour

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Carry out additional surveys to identify sources of pollution	Environment Agency/ NNDC	Defines problem	Cost
2. Investigate potential for reductions in microbial loading from Cley STW discharge	Environment Agency/ AWS	Reduce a potential source of contamination	Cost to AWS and uncertainty of need and benefit until survey completed
3. Do nothing			No solution to bacterial contamination found

### Issue No 13: Improve Environment Agency archaeological database, awareness of archaeological sites throughout the Agency and liaison procedures externally

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Upgrade archaeological information held by the Agency	Environment Agency	Fulfils duties under legislation	Resources (minimal) Potential damage to archaeological sites
2. Improve external liaison procedures	Environment Agency	Better knowledge of resource  Fulfils duties under legislation	Resources

## HUMAN NEEDS

**Issue No 14: Review public access to sea defences to identify problems, remedial actions and other opportunities**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Retain existing public rights of way on sea defences	Environment Agency/ Norfolk Coast Project/ Local Authorities/ Landowners	Meets Environment Agency's recreation objective	Repair costs to defences  Can encourage unauthorised use
2. Enhance public access where appropriate when planning replacement sea defences	Environment Agency/ Norfolk Coast Project/ Local Authorities/ Landowner	Improved public access	Cost  Possible environmental disturbance
3. Retain existing rights of way and control unauthorised access	Environment Agency/ Norfolk Coast Project/ Local Authorities/ Landowner	Reduces damage and disturbance  Improved pedestrian environment	Cost  Problems with policing and enforcement
4. Restrict public access to sensitive frontages	Environment Agency/ Norfolk Coast Project/ Local Authorities/ Landowner	Reduces damage and disturbance	Reduced public access  Reduction in public rights of way  Poor public image
5. Do nothing			Deterioration in flood defences  Reduced recreation environment

## HUMAN NEEDS

**Issue No 15: Promote appropriate public access to rivers for walking and water-based recreational opportunities (including angling) in conjunction with other organisations and in-line with agreed recreation/visitor/tourism strategies**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Liaise with landowners and appropriate bodies to identify desirability of developing canoeing on the lower River Glaven (as identified in the Sports Councils Water Recreation Strategy)	Environment Agency/ Sports Council/ Norfolk Coast Project/ landowners	Improved recreational opportunities  Compliance with Environment Agency legislation	Potential impact on other river uses and wildlife
2. Review access to river banks to identify opportunities for enhancement when undertaking other core function activities (for instance flood defence operations)	Environment Agency/ North Coast Project	Improved recreational opportunities  Compliance with Environment Agency legislation	Potential impact on other river uses and wildlife  Cost
3. Investigate the need to improve angling opportunities on the rivers	Environment Agency/ Angling clubs/ landowners	Improved angling opportunities	Potential impact on other river uses and wildlife

## HUMAN NEEDS

**Issue No 16: Surface and groundwater monitoring network may require an increased number of observation sites**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Install surface gauging stations on the Burn at NGR TF862 356 and on the Glaven at either TF061 371 or TF064 361	Environment Agency	Provide data on flood and low flows, allowing area models to be calibrated	Cost
2. a. Carry out studies to identify shortfalls in the groundwater monitoring network  2. b. Install monitoring boreholes where shortfall is identified	Environment Agency	Aid the impact assessment of flooding and water abstractions  Provide data for calibration of surface and groundwater models	Cost in carrying out the study and installing monitoring boreholes as well as the long term monitoring costs
3. Do nothing		Short term cost saving	May be difficult to carry out Agency's routine business Shortfall in data for model calibration

# FLOOD PROTECTION, DEVELOPMENT CONTROL AND LAND USE MANAGEMENT

## Issue No 17: Identification of flood risk areas

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Undertake assessments to determine flood risk areas	Environment Agency	Provides data for development control purposes and flood warning purposes  May identify areas requiring improved flood defences.	Cost  Long time before full catchment coverage achieved
2. Extend historical flood event records, with detailed records of future major flooding events	Environment Agency	True record, not an empirical assessment	Timescale unpredictable  Only records where defences have failed, or overtopped  Resource allocation problematic
3. Do nothing		Cost	Inadequate information provided to Planning Authorities  Agency contravention of Section 105 <i>Water Resources Act 1991</i>

## FLOOD PROTECTION, DEVELOPMENT CONTROL AND LAND USE MANAGEMENT

Issue No 18: Endeavour to ensure that sea defences meet the Agency target standards, and that they are sustainable, over the anticipated life of the defences, where economically viable, structurally sustainable and environmentally acceptable

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Implement North Norfolk Shoreline Management Plan	Environment Agency/ Local Authorities/ MAFF	Integrated management of defences	Cost  May result in loss of some defended areas
2. Maintain existing defences	Environment Agency	Cost  Maintain status quo	Fragmented approach to flood defence needs
3. Do nothing except emergency response	Environment Agency	Cost	Deterioration in defence standards  Risk of sudden inundation

# FLOOD PROTECTION, DEVELOPMENT CONTROL AND LAND USE MANAGEMENT

## Issue No 19: Concern over the impact of land-use on siltation, habitats and water quality

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Investigate and define the extent of the problem in the river	Environment Agency	Strategic approach to defining problem	Cost and time required  No standard methodologies
2. Identify major sources of silt entering rivers and sites of erosion	Environment Agency	Site specific  May be achieved in a short time	Cost of surveys  May need to be done following storms
3. Identify possible solutions through liaison with land-use organisations landowners, local authorities and developers	Environment Agency/ MAFF/ ADAS/ NFU/ CLA/ LAs/ Developers	Strategic approach involves all responsible bodies  Scope for partnership	Costs  May be difficult to reach consensus on best solutions
4. Continue to de-silt river channels, where justified, and modify the channel to decrease silt deposition, through the maintenance programme	Environment Agency	May be successful in limiting deposition	Does not address source of problem  Cost

## CONTROL OF RELEASES TO THE ENVIRONMENT

**Issue No 20: Concern over contamination of groundwater in the vicinity of RAF Sculthorpe at the head of the River Burn**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Prevent further discharges from soakaways	Environment Agency/ MoD/ Land Agent	Prevents situation from deteriorating or contamination	Does not address historical problems
2. Monitor domestic sources down gradient	Environment Agency/ Environmental Health	Ensure existing supplies remain potable	
3. Monitor observation boreholes	Environment Agency	Progress of plume monitored	
4. Meet with Land agent to discuss and identify way forward	MoD/ Land Agent/ Environment Agency	Remediation measures identified	Costs may be excessive
5. Do nothing			Progress of plume not monitored

**Issue No 21: Control of nitrate from agricultural sources**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Continue to monitor the water quality in the borehole to assess effectiveness of designation	AWS/ Environment Agency	Assess success of NVZ designation and compliance with EC Drinking Water Directive	
2. Liaise with MAFF over NVZ policing	MAFF/ Environment Agency	Enforcement of policy	Resistance from farmers
3. Do nothing			Policy not enforced  Possible exceedences of EC Drinking Water Directive  Blending costs to AWS

## CONTROL OF RELEASES TO THE ENVIRONMENT

### Issue No 22: Concern over flow to Burnham Market STW

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Determine existing discharge volume from Burnham Market STW	AWS	Correct data to evaluate consent  AWS able to carry out remedial works	Time taken to obtain data  Cost
2. Re-evaluate discharge consent	Environment Agency	Identify consent required to meet long term river target	
3. Negotiate with AWS and apply a legal consent which ensures no deterioration based on existing load	Environment Agency/ AWS	Ensure discharge meets legal standard and prevents deterioration of river	May not meet long term river target
4. Set short term RE target if legal consent is different from River Needs consent	Environment Agency	Ensure compliance with target within planning horizon and prevent deterioration  Minimum cost	River will not meet long term targets

### Issue No 23: Potential for deterioration of river water quality, where present effluent quality is better than the current legal consent

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Review target RE class (see issue 3)	Environment Agency	Ensure appropriate long term target	
2. Review River Needs Consents for Holt STW	Environment Agency	Check if existing RNC correct	Moving targets
3. Ensure that consideration is given to imposing RNC in the next asset management plan review (AMP3)	Environment Agency/ AWS	Target river class is maintained through cost effective investment	Target river class may deteriorate
4. Do nothing			Risk river target class failure will continue

## CONTROL OF RELEASES TO THE ENVIRONMENT

**Issue No 24: Ensure there is control over development proposals for disused airfields with respect to the surface water drainage discharges**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Ensure that Agency receives consultation over all proposed developments on disused airfield sites	Environment Agency/ NNDC	Control of development and reduction of pollution risk	
2. Survey of existing uses	Environment Agency	Defines problem	
3. Develop pollution prevention strategy with airfield owners	Environment Agency	Improves existing problem	
4. Do nothing			Continued risk of serious pollution

**Issue No 25: Ensure that the necessary level of treatment for sewage discharges to coastal waters is provided at Cromer and Mundesley**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Ensure "Comprehensive Studies" are completed	Environment Agency	Cost effective approach to ensuring that adequate treatment is provided	Cost to AWS  Reliance on short term model studies
2. Carry out options as determined by outcome of "Comprehensive Studies"	AWS	Appropriate treatment of sewage effluents	Possible cost to AWS
3. Ensure coastal monitoring is adequate to detect any effects of plant nutrients	Environment Agency/ AWS	Meets monitoring requirements of Directive and ensures any adverse effects are identified before next review	Cost of effective coastal monitoring  Possible long term cost to AWS
4. Do nothing			Does not fulfil requirements of UWWTD Directive

## CONTROL OF RELEASES TO THE ENVIRONMENT

**Issue No 26: Concern over the air quality around the Bacton gas terminals, and the capacity of the air environment to accept further industrial development in the area**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Encourage the Bacton gas terminals to set-up an ambient air monitoring system within the area	Companies/ Environment Agency	Consistent with "the polluter pays" principle  Actual environment data collected	Local population sceptical about monitoring undertaken by the companies involved
2. Environment Agency undertakes detailed monitoring study within the area in co-operation with Local Authority	Environment Agency/ LA	Reassure local population  Actual environmental data collected	Cost benefit
3. Do nothing extra, improvement already required under existing IPC authorizations will reduce emission	Companies/ Environment Agency	Cost benefit	Local population not reassured  No evidence from environmental monitoring of improvement
4. Require fully detailed environmental assessment before authorising further development	Applicant/ Environment Agency	Reassure local population  No cost to Environment Agency or existing industry	Costs incurred by single party who may not contribute significantly to the problem

**Issue No 27: Bacterial contamination of Wells Harbour**

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Monitor bacterial contamination of harbour	Environment Agency	Obtain more data to identify source	Difficulty of locating source
2. Provide facilities for disposal of sewage from vessels	Harbour Authority	Improved water quality	Cost

## CONTROL OF RELEASES TO THE ENVIRONMENT

### Issue No 28: Sewer overflows to the River Burn

The River Burn valley foul sewer serves the villages of South Creake, North Creake and Burnham Thorpe. It also conveys sewage from other hamlets in the catchment.

During prolonged wet periods surface water infiltration of the foul sewers arises, resulting in surcharging of the foul sewerage system. Dilute sewage then overflows from manholes and pumping stations, discharging to the river.

OPTIONS	RESPONSIBILITY	ADVANTAGES	DISADVANTAGES
1. Reduce infiltration to sewer	AWS	Reduces frequency of overflow	Cost
2. Remove surface water from foul sewer	AWS	Reduces frequency of overflow	Cost
3. Enlarge the sewer	AWS	Reduces frequency of overflow	Cost, disruption and need to enlarge sewage works
4. Undertake drainage study of river	Environment Agency	Optimises drainage capacity	Cost
5. Do nothing			Continuation of frequent sewer overflows

### ABBREVIATIONS USED

<b>ADAS</b>	Agricultural Development Advisory Service	<b>NNDC</b>	North Norfolk District Council
<b>AMP3</b>	Third Asset Management Plan	<b>NVZ</b>	Nitrate Vulnerable Zones
<b>AWS</b>	Anglian Water Services	<b>R&amp;D</b>	Research & Development
<b>BGS</b>	British Geological Survey	<b>RE</b>	River Ecosystem
<b>CLA</b>	Countryside Landowners Association	<b>RFOs</b>	River Flow Objectives
<b>CWS</b>	County Wildlife Site	<b>RMF</b>	Residual Minimum Flow
<b>DoE</b>	Department of the Environment	<b>RNC</b>	River Needs Consent
<b>EN</b>	English Nature	<b>SAC</b>	Special Area of Conservation
<b>EU</b>	European Union	<b>SMPs</b>	Shoreline Management Plans
<b>IPC</b>	Integrated Pollution Control	<b>SSSI</b>	Site of Special Scientific Interest
<b>LAs</b>	Local Authorities	<b>STW</b>	Sewage Treatment Works
<b>MAFF</b>	Ministry of Agriculture Fisheries and Food	<b>UWWTD</b>	Urban Waste Water Treatment Directive
<b>MoD</b>	Ministry of Defence	<b>WCOs</b>	Water Companies
<b>NFU</b>	National Farmers Union	<b>WLMPs</b>	Water Level Management Plans
		<b>WR</b>	Water Resources

## MANAGEMENT AND CONTACTS:

The Environment Agency delivers a service to its customers, with the emphasis on authority and accountability at the most local level possible. It aims to be cost-effective and efficient and to offer the best service and value for money.

Head Office is responsible for overall policy and relationships with national bodies including government.

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS12 4UD  
Tel: 01454 624 400 Fax: 01454 624 409

## ENVIRONMENT AGENCY REGIONAL OFFICES

### ANGLIAN

Kingfisher House  
Goldhay Way  
Orton Goldhay  
Peterborough PE2 5ZR  
Tel: 01733 371 811  
Fax: 01733 231 840

### NORTH EAST

Rivers House  
21 Park Square South  
Leeds LS1 2QG  
Tel: 0113 244 0191  
Fax: 0113 246 1889

### NORTH WEST

Richard Fairclough House  
Knutsford Road  
Warrington WA4 1HG  
Tel: 01925 653 999  
Fax: 01925 415 961

### MIDLANDS

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

### SOUTHERN

Guildbourne House  
Chatsworth Road  
Worthing  
West Sussex BN11 1LD  
Tel: 01903 820 692  
Fax: 01903 821 832

### SOUTHWEST

Manley House  
Kestrel Way  
Exeter EX2 7LQ  
Tel: 01392 444 000  
Fax: 01392 444 238

### THAMES

Kings Meadow House  
Kings Meadow Road  
Reading RG1 8DQ  
Tel: 01734 535 000  
Fax: 01734 500 388

### WELSH

Rivers House/Plas-yr-Afon  
St. Mellons Business Park  
St. Mellons  
Cardiff CF3 0LT  
Tel: 01222 770 088  
Fax: 01222 798 555



The 24-hour emergency hotline number  
for reporting all environmental incidents  
relating to air, land and water

**ENVIRONMENT AGENCY  
EMERGENCY HOTLINE**

**0800 80 70 60**

**BUSINESS REPLY SERVICE**  
Licence No. PE1093/1

Do not affix Postage Stamps if posted in  
Gt. Britain, Channel Islands or N. Ireland



**ENVIRONMENT**  
**AGENCY**

2



ENVIRONMENT AGENCY  
ANGLIAN REGION  
EASTERN AREA  
COBHAM ROAD  
IPSWICH  
SUFFOLK  
IP3 9JE

## YOUR VIEWS

The North Norfolk Local Environment Agency Plan Consultation Report is our review of the catchment and the issues facing it. Please send us your comments.

- 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?

.....  
.....

- What views do you have on this document and how the Environment Agency has undertaken consultation?

.....  
.....

- Please put your name and address or affiliation below

.....  
.....

*Please complete and send to the Environment Agency (FREEPOST - see overleaf)*

