EA-Southern LEAPs

# local environment agency plan

## MEDWAY LEAP

**CONSULTATION DRAFT**

**JANUARY 1999**


ENVIRONMENT AGENCY

# YOUR VIEWS

The Medway Draft Local Environment Agency Plan (LEAP) is the Agency's initial analysis of the status of the environment in the Medway Catchment and the environmental issues that we believe need to be addressed. It looks at issues that are local to the catchment in support of the Environment Agency's Kent Area LEAP which is focussing on cross boundary issues.

**We would like to hear your views :**

- Have we identified all the major issues?
- Have we identified realistic options for action?
- Do you have any comments to make regarding the plan in general?

During the consultation period for this report the Agency would be pleased to receive any comments in writing to:

The LEAPs Officer (Kent)
The Environment Agency Southern Region
Orchard House
Endeavour Park
London Road
Addington
West Malling
Kent ME19 5SH

**ALL COMMENTS MUST BE RECEIVED BY 30 APRIL 1999**

All comments received on the Draft LEAP will be considered in preparing the next phase - the LEAP. The LEAP will focus on updating the Draft LEAP by turning the options for action into actions that will make a difference.

Note: Whilst every effort has been made to ensure the accuracy of information in this report there may be errors or omissions which we will be pleased to note. All comments will be treated as public information and will be released on request unless you explicitly state otherwise

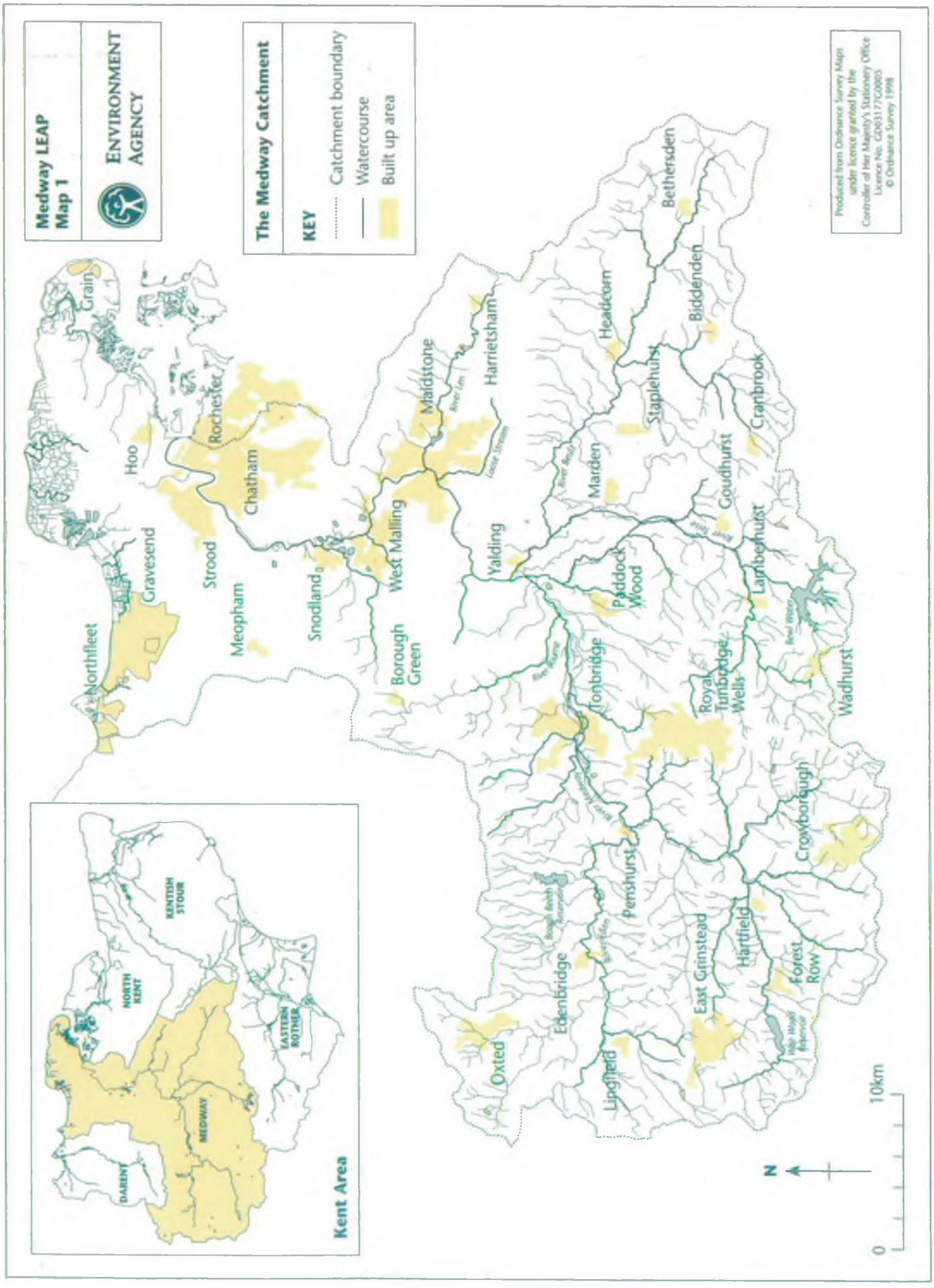
**Published Documents**

Two documents have been produced by the Agency in the LEAP process:

**Draft LEAP**
This is the Draft LEAP which concentrates on the environmental issues relevant to the Agency and the identification of possible options for action to address those issues.

**Environmental Overview**
The Environmental Overview is a separate document which is available on request. It analyses the state of the local environment looking at the impact of particular pressures, generating a list of issues that are discussed in this report.

# Catchment Overview



# Medway Area Key Details

***General***

| | |
|---|---|
| Area (sq km) | 1780.99 |

***Administrative Details***

Councils and % of the Kent Area they Administer

| | |
|---|---|
| Kent CC | 67.1 |
| Medway C | 9.9 |
| Surrey CC | 8.2 |
| East Sussex CC | 12.5 |
| West Sussex CC | 2.3 |

***Population***

| Year | Population |
|---|---|
| 1991 | 734 000 |
| 2001 (Estimate) | 755 000 |

***Water Resources***

Rainfall (mm/yr)

| | |
|---|---|
| Average | 729 |
| Drought Conditions | 571 |

Number of licensed abstractions

| | |
|---|---|
| Surface Water | 265 |
| Groundwater | 201 |
| Impoundments | 42 |

***Conservation***

| | |
|---|---|
| Sites of Special Scientific Interest | 49 |
| Water Dependant SSSIs | 30 |
| Special Areas of Conservation | 0 |
| Special Protection Areas | 0 |
| Ramsar Sites | 3 |
| National Nature Reserves | 2 |
| Local Nature Reserves | 0 |
| Areas of Outstanding Natural Beauty | 0 |

***Fisheries***

Length of EC Designated Fisheries (km):

| | | |
|---|---|---|
| Cyprinid | | |
| Freshwater | 87.2 | Tidal 0 |
| Salmonid | | |
| Freshwater | Bewl Water | Tidal 0 |

***Water Quality***

River ecosystem classification as % of the Medway catchment between 1995-1997

Class

| | |
|---|---|
| RE1 | 8 |
| RE2 | 30 |
| RE3 | 12 |
| RE4 | 15 |
| RE5 | 1 |

Chemical GQA as % of sites in each class for the Medway catchment rivers in 1995

Class

| | |
|---|---|
| A | 9 |
| B | 35 |
| C | 35 |
| D | 14 |
| E | 6 |
| F | 1 |

***Pollution Prevention & Control***

Licensed Waste Sites

96

Process Industry Regulations

21(Plus two proposed)

Radioactive Substance Regulations

Authorised sites to accumulate and dispose of radioactive waste 8.

***Flood Defence***

| | Length (km) |
|---|---|
| Main River *including tidal lengths* | 259.74 |
| Sea Defences *Agency responsibility* | 11.66 |
| Tidal Banks | 55.33 |

Length of Inland Navigation 31km

## FOREWORD

The Environment Agency is one of the most powerful environmental regulators in the world. By combining the regulation of air, land and water, we have a unique opportunity to look at our environment in an integrated way.

Local Environment Agency Plans aim to provide a means for setting priorities, solving problems and protecting and improving the environment in a co-ordinated way. The Medway Local Environment Agency Plan (LEAP) Consultation Draft has been drawn up to give everyone interested in the environment of this area an opportunity for active involvement in its future.

This LEAP examines issues specific to the catchment in support of the more strategic and broader based issues identified in the Kent Area LEAP. It provides a focus for all participants to undertake and achieve environmental improvements in a sustainable manner. Opportunities for enhanced environmental improvement through partnership are also identified in the LEAP.

This plan represents a shared vision for the future and plays a vital role in the protection of our environment, whilst recognising the ever competing pressures on the environment and the need to balance cost and benefit.

I would like to thank you for your time spent studying this plan and welcome any comments you wish to make about it. Your responses to this consultation exercise will be incorporated into the final Action Plan identifying how the Agency will enhance the environment of the Medway Catchment for the next 5 years.

**Dr Binny Buckley**
**Kent Area Manager**

## CONTENTS

## 1.0 THE ENVIRONMENT AGENCY

**The Agency's vision is:**

- *A better environment in England and Wales for present and future generations.*

**The Agency's aims are:**

- to achieve major and continuous improvements in the quality of air, land and water
- to encourage the conservation of natural resources, animals and plants
- to make the most of pollution control and river-basin management
- to provide effective defence and warning systems to protect people and property against flooding from rivers and the sea
- to reduce the amount of waste by encouraging people to re-use and recycle their waste
- to improve standards of waste disposal
- to manage water resources to achieve the proper balance between the country's needs and the environment
- to work with other organisations to reclaim contaminated land
- to improve and develop salmon and freshwater fisheries
- to conserve and improve river navigation
- to tell people about environmental issues by educating and informing
- to set priorities and work out solutions that society can afford

**The Agency will do this by:**

- being open and consulting others about our work
- basing our decisions around sound science and research
- valuing and developing our employees
- being efficient and businesslike in all we do

The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management (Appendix 1). The Agency is required and guided by Government to use these duties and powers in order to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development *"as development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*.

At the heart of sustainable development is the integration of human needs and the environment within which we live. Indeed the creation of the Agency itself was in part a recognition of the need to take a more integrated and longer-term view of environmental management at a national level. We therefore have to reflect this in the way we work and in the decisions we make.

Taking a long-term perspective will require the Agency to anticipate risks and encourage precaution, particularly where impacts on the environment may have long-term effects, or when the effects are not reversible. The Agency must also develop its role to educate and inform society as a whole, as well as carrying out its prevention and enforcement activities, in order to ensure continuing protection and enhancement of the environment.

One of the key outcomes of the United Nations "Earth Summit" held in Rio de Janeiro in 1992 was agreement by governments that, in order to solve global environmental problems, local action is crucial: we must all therefore think globally but act locally.

Against this background the Agency has drawn up an Environmental Strategy to deal with the major problems by an integrated approach to the management of the whole environment. This approach has led to the identification of nine environmental concerns which will be used for the Agency's planning processes:

- Addressing climate change
- Improving air quality
- Managing our water resources
- Enhancing biodiversity
- Managing our freshwater fisheries
- Delivering integrated river-basin management
- Conserving the land
- Managing waste
- Regulating major industries

## 1.1 Local Environment Agency Plans

The Agency is committed to a programme of Local Environment Agency Plans (LEAPs) in order to produce a local agenda of integrated action for environmental improvement. These will also allow the Agency to deploy its resources to best effect and optimise benefit for the local environment.

LEAPs help the Agency to identify and assess, prioritise and solve local environmental issues grouped around the nine environmental concerns, taking into account the views of local stakeholders. The outcome of the process is a local programme of integrated action for environmental improvement.

LEAPs replace the Catchment Management Plans which were produced by the former National Rivers Authority and build on their success by covering all the Agency's functions.

## 1.2 The LEAP Process

Each LEAP will take a long term view of local environments and set out a five year plan of action for solving local issues. Published Draft Consultation Reports will cover all parts of England and Wales, including Southern Region of the Environment Agency, by the end of 1999, but this is only the first milestone in what will be an ongoing national programme of LEAPs, which will be regularly updated, developed and improved.

Figure 1 THE LEAP PROCESS


### 1.2.1 LEAP Consultation Draft

The LEAP Consultation Draft concentrates on the prioritisation of environmental issues relevant to the Environment Agency and the identification of possible options for action necessary to restore/improve the local environment. This document is the main focus for public consultation. The issues and options for action put forward to address those issues have been structured around the Agency's nine environmental themes, which aim to protect and enhance the environment in an integrated way and contribute towards the goal of sustainable development.

An Environmental Overview is produced as a separate document and is a factual description and analysis of the local environment, looking at the impact of stresses on its state, and generating a list of issues for consideration by the Agency and others. The Environmental Overview supports the Consultation Draft and provides the background to the issues.

The publication of this Consultation Draft marks the start of a three month period of formal consultation enabling external organisations and the general public to work with us in planning the future of the local environment.

**This is the first output of the process and is not the final plan.**

It gives you an opportunity to:

- highlight any issue/actions not already identified within the area.
- work towards establishing and implementing a five year action plan.

Please send your response in writing to the LEAP Officer at the address given on the cover of this report by 30 April 1999.

At the end of the consultation period a Statement on Public Consultation will be produced which will give the results of the process.

### 1.2.2 LEAP Plan

The final LEAP Plan will take into account the results of consultation and will be produced by August 1999. It will contain a list of actions that take account of costs and benefits, identifying timescales and partner organisations. Agreed actions will be incorporated into the Agency's annual business plans.

### 1.2.3 Annual Review

The Agency will monitor implementation of the LEAP and report on progress in a published Annual Review. The Annual Review will also identify any additional actions needed to maintain progress in the light of any changes in the LEAP area and also whether any actions need removing or amending where they are no longer appropriate. After five years, or sooner if required, the Agency will carry out a major review of the progress that has been made. At this stage the Agency will produce a new LEAP Consultation Draft to reflect these changes to further improve the local environment.

## 1.3 Kent Area Approach

In the Kent Area of the Agency an Area-wide LEAP has been prepared addressing strategic and significant issues. Local issues of particular relevance to the Medway catchment are addressed in this document (other catchment LEAPs for the Darent, Eastern Rother, Kentish Stour and North Kent will also be produced separately. If you would like a copy of any of these LEAPs, as they become available, please send a request to the Agency at the address on the cover).

## 2.0 THE MEDWAY CATCHMENT

*Pooh could get his chin on to the bottom rail if he wanted to, but it was more fun to lie down and get his head under it, and watch the river slipping slowly away beneath him.*

*(The House at Pooh Corner, A A Milne 1885)*

The Medway is a catchment of contrasts and this description of the river near Hartfield as it flows quietly through the picturesque Weald may be difficult to recognise as the same river which spawned the Royal Naval Dockyard, paper making, the cement industry and power generation in its lower reaches where its estuary joins the Thames.

It may come as a surprise to learn that the Medway is one of England's great rivers and the largest in the Agency's Southern Region. It flows more than 100 kilometres from its source from the Tunbridge Wells Sands in Ashdown Forest in East Sussex to its mouth at Sheerness. The origin of its name is derived from the Celtic *Medu*, meaning mead or sweet water, but by the time it reaches the estuary it becomes muddy with a considerable load of clay and silt which it picks up as it crosses the Gault and Wealden Clays of Kent. The river's power, used since Roman times for forges to create iron from the deposits in the clays, led to the early establishment of industry in the headwaters, now a quiet agricultural area - a further manifestation of the contrasting nature of the Medway.

Although the Medway is the traditional boundary between the Men of Kent to the east and Kentish men to the west, a more tangible difference today is the urban, industrial character of the river once it cuts through the chalk of the North Downs and the largely rural nature of the river in the Weald to the south. Not only does the northern area include the Medway towns of Chatham, Gillingham, Rochester and Strood but also evidence of twentieth century enterprise along the banks of the estuary such as docks, oil terminals, chemical, paper and cement works, waste disposal sites and power stations. However, while Thamesport on the Isle of Grain is one of the world's most advanced container ports, away from the river, the marshes are a superb haven for wildfowl and the reclusive water vole.

It is perhaps the geology of the catchment which over time, has produced these contrasts. The sands and clays of the High Weald in the south produce deeply incised tributaries; the cut through the chalk block to the north results in few surface watercourses. The clays of the headwaters are relatively impermeable to rainfall and a multitude of small streams are formed which meet to form the Medway itself which joins with the River Eden at Penshurst. As the Medway flows eastwards across the Vale of Kent the gradient reduces and collects tributaries which rise in other parts of the High Weald including the rivers Bourne, Teise and Beult. The Wealden rivers respond rapidly to rainfall and are subject to extremes of flow between summer and winter. There are three water storage reservoirs in this part of the catchment: Bough Beech, Weir

Wood and Bewl Water. Bewl near Lamberhurst is the largest of these and is filled partly from its natural catchment and partly by water pumped from the River Teise near Goudhurst and from the Medway itself at Yalding. This normally takes place in the autumn and winter and water is then released to support Southern Water's abstraction for water supply from the Medway at Springfield near Maidstone; Mid Kent Water also takes water directly from Bewl for treatment. The reservoirs support both fishing and recreational activities.

This part of the catchment is principally agricultural with dairy and arable farms, fruit orchards, vegetable growing and hopfields and deserves its title as the Garden of England. Cobbett said of this stretch in his Rural Rides *"I believe (it) to be the very finest, as to fertility and diminutive beauty in the whole world"*. Pollution from agricultural run off from the dairy farms or from fertilisers and pesticides is a potential hazard in this area given the sloping ground and the relative impermeability of the clays. Spray irrigation is used particularly on the River Teise and River Beult.

The Wealden rivers support good populations of coarse and game fish with consequent angling interests; the Medway as a whole attracts large numbers of anglers. However, the existing conditions in the estuary prevent a self-sustaining population of sea trout or salmon although they are seen occasionally in wet seasons.

The southern catchment is of particular value for its nature conservation. Ashdown Forest is a Site of Special Scientific Interest as is the River Beult itself and the otter is known to be present in some stretches - an indication of a high quality environment. However low summer flows, nutrients and high temperatures pose a challenge for the maintenance of water quality. The upper catchment is protected from development either by Green Belt or by the designated High Weald Area of Outstanding Natural Beauty. The Wealden area remains comparatively unknown and its mixture of copses, hedges and mosaic of streams creates an intimate pastoral landscape. This contrasts with the wider vistas of the vale of Kent across which the Beult and middle Medway flow.

The clay soils, together with the spread of urban development, give the river a 'flashy' character and historically the area has suffered from flooding of both property and agricultural land; in September 1968 considerable damage was caused in Tonbridge and surrounding areas. In order to alleviate flooding, the largest flood storage area in Britain was created in 1982 at Leigh, upstream of Tonbridge. This holds back floodwater which is then released at a controlled rate once flood flows have abated.

After leaving the clay vale, the Medway cuts through the Greensand Ridge beyond Yalding and collects two more tributaries, the Loose stream and the River Len before reaching the County Town of Maidstone. The Medway is navigable downstream of Tonbridge and the tidal limit is reached at Allington

Lock from where the river flows north cutting through the chalk of the North Kent Downs. The North Kent chalk provides the major groundwater source for the catchment's water supply and the North Downs themselves are designated as an AONB. This LEAP includes the Isle of Grain, the Hoo Peninsula and the North Kent marshes west as far as Gravesend but excludes the lower Medway estuary and marshes.

The Medway towns, together with Maidstone, are anticipated to be the focus for future housing development in Kent, placing particular pressure on water supply, sewage treatment, run off and flood defences. Waste management is also of concern in the catchment given the limited remaining space in existing landfills and the need to export waste to other counties. This has resulted in recent years in a number of proposals being put forward for incineration or waste to energy plants which are seen as the best option by some and opposed by others. Other development pressures are derived from the continued mineral working of sand, clay brick earths and chalk and proposed new cement works and power stations.

The Channel Tunnel Rail Link will pass through the catchment entailing a new crossing of the River Medway and particular care will be required to ensure that natural resources and environmental quality are not compromised by its construction and operation. The road network, particularly along motorway routings and the system around the Medway towns, results in depressed levels of air quality in these areas and this is of particular concern to the local authorities.

In the upper estuary of the Medway there are numerous discharges from paper and chemical industries, cooling waters from power stations and sewage effluents from the major treatment works. Although these are treated to the required standards set by the Agency, in times of low river flow much of the flow is comprised of these discharges thus limiting the river's ability to sustain fish life.

The grazing marshes of the Hoo Peninsula are notable for their value for wildlife and have been identified as such by international designation. The water vole, whose habitat is protected and which is declining in numbers in Britain, finds shelter in the ditches of these marshes. The marshes are managed by farmers to promote nature conservation interests under the MAFF Environmentally Sensitive Areas Scheme.

The catchment is administered by four county councils, eleven district councils and one unitary authority which perhaps indicates the complexity of the catchment and its varying characteristics. Similarly water is supplied by five different water companies and there are three Internal Drainage Boards in the catchment.

In summary, the catchment is one of contrasts - designated for its natural beauty yet subject to some of the greatest housing and industrial development

pressure in Britain. A wide range of designations serve to protect the catchment from over-development and numerous organisations and voluntary groups exist to maintain and protect that natural environment. This Consultation Draft of the LEAP will act as a framework for identifying and confirming issues and subsequent actions which can be taken forward by the Environment Agency and others to ensure that the Medway catchment provides a sustainable source of employment and enjoyment for the next millennium.

## 3.0 ENVIRONMENTAL ISSUES AND OPTIONS FOR ACTION

### Introduction

This section of the LEAP details environmental issues directly concerning the Agency which the Agency considers need to be addressed within a future Action Plan for the Catchment. This initial list of issues has been identified from an Agency review of the environment together with the Area Environment Group (AEG) whose members represent a wide range of interests in the Catchment. The Agency has also considered the concerns and aspirations of organisations with particular interests and responsibilities in the area.

Discussion meetings were held with the AEG and various departments of local authorities in the catchment. The Agency invited comment by correspondence with other organisations interested in the area and Appendix 2 lists organisations contacted during this preliminary consultation. Comments and ideas have been incorporated wherever possible and the Agency is grateful for the contribution of the time and effort of respondents and consultees.

The initial list of issues presented in this Consultation Draft is intended to encourage debate and to seek your views on the environmental issues which face the Medway catchment. Many of the issues are inter-related and this reflects the need for integrated environmental management. The issues are presented in a summary and cross-referenced to our nine environmental concerns for action as detailed in the Agency's Strategy for the Millennium and Beyond. The following section gives a background to each issue and suggests potential options for action. Further information is detailed in the Environmental Overview which can be obtained from the Agency if required.

Costing of actions has not been attempted for this Draft but have been accorded High (H - above £250,000) Medium (M - £50,000 - £250,000) and Low (L - below £50,000). It has to be remembered that these are Agency costs.

It can be assumed throughout that the "Do nothing" option incurs no costs at present - which could be considered as an "advantage". However, it has to be remembered that this is a short term situation only since the environmental issue is not addressed in many cases, and may only delay costs until a later date when it will have to be resolved.

Local issues in particular are addressed in this LEAP. The Kent Area-wide LEAP, produced previously, addresses those issues which relate to the Kent Area as a whole or are of particular major local significance.

The issues are not arranged in any particular order of relative importance but have been grouped in accordance with the Environment Agency's nine

environmental concerns as listed in the "Environmental Strategy for the Millennium and Beyond" (Environment Agency, 1997).

## ISSUES SUMMARY

| Environment Agency Concern* | | Issue |
|---|---|---|
| Addressing Climate Change | 1 | Flood defence provision and operation in the Medway catchment needs to be reviewed to address the increased flood risk due to the predicted effects of climate change |
| | 2 | Impact of predicted climate change effects on water management in the Medway catchment |
| Improving Air Quality | | No issues identified (but see Issue 21 and involvement with local Air Quality Partnership) |
| Managing Water Resources | 3 | Implications of the water resource supply and demand management strategy in the South-East Region |
| | 4 | Effect on water resources of Blue Circle Industries moving cement works from Northfleet |
| Enhancing Biodiversity | 5 | How to enhance biodiversity in the Medway catchment |
| | 6 | Spread of invasive species and diseases |
| Managing Freshwater Fisheries | 7 | There are barriers to the movement of fish on the Medway |
| | 8 | Sustainable fisheries management |
| Delivering Integrated River-Basin Management | 9 | Increased incidence of coastal and river bank erosion and associated siltation |
| | 10 | Redevelopment of older waterside areas seeks to maximise the use of the land |
| | 11 | Protection of river flows in River Beult |
| | 12 | Need to improve our understanding of flow and water quality in the Medway estuary |
| | 13 | Impacts of flood defence operations on Medway tributaries on habitats and fisheries |
| | 14 | Protection and enhancement of wetland and riverine habitats |

| Environment Agency Concern* | | Issue |
|---|---|---|
| | 15 | Non-compliance with EU standards and Agency objectives for water quality |
| | 16 | Intermittent pollution of watercourses |
| | 17 | How to manage the access to water for recreation in the Medway catchment |
| Conserving the Land | 18 | Redevelopment of industrial areas needs to ensure that any contaminated land is appropriately remediated |
| | 19 | Extraction of minerals may create environmental impacts within the catchment |
| Managing Waste | 20 | Spreading of paper sludge wastes on agricultural land |
| | 21 | Waste management options for the Medway catchment |
| | 22 | Pollution risks from Fort Horsted tyre dump |
| Regulating Major Industries | No issues identified (but see Issue 4) | |

* From: An Environmental Strategy for the Millennium and Beyond (Environment Agency 1997)

**Issue 1: Flood defence provision and operation in the Medway catchment needs to be reviewed to address the increased flood risk due to the predicted effects of climate change**

The predicted effects of climate change with rising sea levels and potentially increasing intensity of rainfall, combined with the settlement of the south-east of England will place existing flood defences under pressure with new areas consequently becoming exposed to risk of flooding. This issue has been addressed strategically in the Kent LEAP and the Agency will be working with local authorities to ensure that development takes place in appropriate areas and that planning and resources are focused on areas subject to risk. This will include the review of the Thames Tidal Flood Defences which are nearly 25 years old, attention to localised flooding problems at Yalding and the exercising of general supervisory powers of the Agency to encourage the implementation and maintenance of flood defences on Internal Drainage Board (IDB) and private watercourses. Existing flood defences will be maintained and the cost effectiveness of the Medway Tidal Defences and other structures will be reviewed.

In recent years, in the absence of severe flooding in the catchment, an air of complacency is perceived with respect to flood risk and we will continue to advise on proposed development locations to ensure protection of floodplains and designated flood storage areas. Following the Easter 1998 floods in the Midlands, the Agency will ensure that it can accurately identify and alert householders and landowners at risk. At present the Agency is not confident that its database is accurate or adequate for existing or predicted areas where people and property are at risk. The Agency will continue to monitor weather conditions, rainfall, tidal and river levels to forecast where flooding may occur and issue flood warnings to the public as appropriate to minimise risk and damage. The Leigh Barrier will be operated in high flow conditions to provide an effective defence against flooding in Tonbridge and the downstream reaches of the River Medway.

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Confirm areas at risk from flooding. | Reliable base line information. | Cost. | M | LPAs |
| Ensure that owners and occupiers in flood risk areas are on the Agency's database. | More efficient and effective flood warning. | Cost. Reluctance of home owners/ occupiers to accept flood risk. | L | Landowners/ occupiers LPAs |
| Review Thames and Medway Tidal Defence provision. | Reliable information for decision making. | Potential inadequacy of defences. | L | LPAs Landowners |
| Review flooding issues. | Protection of life and property. | Resources. | L | LPAs Landowners |
| Do nothing. | No cost. | Potential risk of harm to life and property. | - | - |

**Issue 2: Impact of predicted climate change effects on water management in the Medway catchment**

Current climate change predictions associated with water resources include changes in rainfall and river flows, increased evaporation and a tendency for the south-east to become drier. Because the effects are likely to be exacerbated in the south-east it is necessary to institute a routine for monitoring the impact on the water environment. Special attention will need to be given to the flow regime at key measurement sections in the catchment:

The significance of any observed changes will be assessed with regard to:

- effective rainfall
- river flows
- long term changes in groundwater storage
- wetland regimes
- deployable outputs from public water supply (PWS) sources
- demand growth for PWS, agriculture
- overall balance of water resources

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Institute a routine for monitoring climate-change impact on water supply demand-growth and the balance of resources. | Facilitates a more effective management of water resources (including drought planning) and environmental protection. Provides basis for an action plan for vulnerable areas. | Increased workload on routine hydrometry and environmental monitoring. | M | Water companies Conservation bodies |
| Do nothing. | No cost. | Less effective resource management strategy. | - | - |

**Issue 3: Implications of the water resource supply and demand management strategy in the South-East Region**

The summary of the balance of resources presented in the Environmental Overview revealed a wide range in the level of commitment with respect to authorised abstraction with the Beult at 1% and West Swale/Medway Estuary at around 100% representing the extreme cases. As for Kent in general, the Medway shows a marked concentration of public water supply development in the groundwater - dominated areas but we also have the anomaly of the Eden catchment which, at 77% (90% during the 1992 drought), provides an example of over-commitment in a predominantly surface-water setting. By contrast, the apparently healthy balance for the Beult disguises the underlying vulnerability of this lowland clay river which, with virtually no spring-fed headwaters to support baseflow, displays the lowest average summer flow of any other catchment of its size in the area. Most of the low flow component of this SSSI stream is sustained by waste-water treatment works effluent (see Issue 11). In consequence there is little if any scope for run-of-river abstraction schemes that would not impact adversely on its special status.

Future development and management of resources in the Medway must therefore strike a delicate balance between environmental enhancement and the need to meet realistic public supply expectations. Whatever form the long-term strategy takes, it will need to make full use of any remaining potential for the conjunctive use of surface (river-fed) and groundwater resource components. Priorities for the Medway will be defined primarily by the hierarchy of management initiatives now being put together by the "Water Resources in the South East Group" which comprises representatives of the Agency, OFWAT and the water companies operating in the south-east. It will also embody many of the actions identified in the July 1997 update of the Southern Region Water Resource Strategy "Sustaining our Resources". The list of key elements will include:

- Demand management (leakage control and selective metering)
- Water conservation measures
- Local bulk supply agreements between water companies
- Strategic transfers
- Enlargement of existing strategic reservoirs
- Re-use and re-cycling measures (including aquifer storage and recovery)
- De-salination

These and other measures will be assessed as part of the 1999 OFWAT Review.

The order in which the strategy components are listed can be taken as broadly reflecting the general priority for implementation, to the extent that the Agency would, for example, expect a water company to have substantially fulfilled its demand management and conservation programmes before embarking on development of new sources of supply. On the other hand, the timing of measures such as bulk supply agreements and strategic transfers might be regarded as more flexible and there would be a preference here for options which most effectively reconciled public supply and environmental objectives.

The order of implementation will also be strongly influenced by those factors which control demand-growth and also by the extent to which the Agency will need to commit or re-allocate resources to the enhancement or protection of water-dependent conservation sites.

The Agency would consider the principal factors to be:

- Climate change (influencing both demand and resource availability)
- Public supply demand (including planned growth)
- Structure plan development (e.g. CTRL, Thames Gateway)
- National Environment Programme (including Habitats Directive)

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Implementation of the Regional Strategy as prescribed. | Consistent with regional and national priorities and meets the minimum statutory duty requirements. | Inflexible. Takes no account of environmental and structure plan programmes. | H | Water companies |
| Implementation as part of an integrated programme. | Follows regional and national priorities but also reflects realistic environmental and strategic planning objectives. | More complex management and liaison procedures required. | H | Water companies<br>LPAs<br>Conservation bodies<br>Industry<br>Agriculture |
| Do nothing. | No cost. | No strategic context for management of resources. Agency would fail to meet its statutory duty to decide the proper use of resources and complete the environmental programme | - | - |

**Issue 4: Effect on Water Resources of Blue Circle Industries moving cement works from Northfleet**

Chalk excavation by Blue Circle Industries (BCI) at Northfleet has, for some years now, been accompanied by increasing rates of de-watering to prevent interference with quarrying operations and to protect works. Over the past 20 years or so there has also been a general decrease in abstraction from boreholes serving the paper mills and other local industries and BCI have had to pump progressively harder to compensate for this. Current de-watering rates for the three principal discharge points are estimated at more than 30 M1/d which would be comparable with the yield of many strategic public water supply sources.

De-watering is not currently subject to licensing control, being exempt under Section 29 of the 1991 Water Resources Act, but there is likely to be increasing pressure on the re-use of this wasted resource. The need for a coherent strategy has been given added impetus by BCI's decision to cease quarrying in the Northfleet/Swanscombe area sometime within the next 3 years and, subject to planning consent, establish a new operation at Holborough. This site is estimated to have approximately 30 years of reserves at current levels of demand. If this goes ahead there will be no need for BCI to continue de-watering operations at Northfleet but the company are aware, that if they cease pumping, they may have to deal with the consequences of rising groundwater levels.

At the proposed new site particular attention will need to be given to the effects of quarrying on local groundwater sources, efficient water management within the plant and the water requirements of Holborough marshes in order to promote sustainable water resource management.

Water resources are addressed as the main theme of this proposed move since other issues are regulated by the Integrated Pollution Control duties of the Agency.

The Agency is in the process of evaluating a number of alternatives for development of the water resources of the Swanscombe Chalk block. Selection will be on the basis of the most environmentally cost-effective profile and the preferred option will need to satisfy certain key objectives, notably:

- establishment and maintenance of a stable regime of water table levels
- enhancement of low flows in the River Darent
- maximisation of public-supply potential
- protection of local water - dependent conservation sites including Ebbsfleet Stream and Swanscombe Marshes

The route of the CTRL is in the vicinity and rising groundwater levels will have implications for the construction and maintenance of the tunnel route. In addition particular attention will be given to securing the best use of water resources during construction and ensuring that detailed design gives protection to existing water resources.

| **Options for Action** | **Advantages** | **Disadvantages** | **Financial Cost** | **Potential Partners** |
|---|---|---|---|---|
| Implement an Action Plan for the development of Swanscombe chalk groundwater resources for public supply and environmental enhancement. | Long term sustainable management with high value re-use of the resource. | Management commitment by Agency. | L | Water companies<br>BCI<br>DETR |
| Selective development sufficient to control water table levels. | Low cost. | May not be sustainable in the long term. | L | BCI |
| Do nothing.<br>Respond to localised groundwater flooding problems.* | Minimal commitment of Agency man power in short term. | Risk of extensive groundwater flooding and mobilisation of pollutants from contaminated land sites. Heavy commitment of Agency manpower in Medway long term. | H | |

* NB: The Agency does not have a statutory duty to control or mitigate groundwater flooding.

## Issue 5: How to enhance biodiversity in the Medway catchment

There are various actions which need to be undertaken in order to achieve the commitments and targets in the UK Biodiversity Action Plan, which are further detailed for Kent and Sussex in their respective Biodiversity Action Plans. The priority is for the Agency to implement its UK BAP commitment, notably for water vole, otter, white-clawed crayfish, allis and twaite shad. Implementation of additional actions within the counties of Kent, Surrey and East Sussex will be considered in this context. The Agency will collate and assess existing information, initiate surveys to fill any gaps in knowledge and prepare a Medway catchment Biodiversity Action Plan for water related species such as the otter.

The Agency will foster closer working partnerships with land owners, countryside projects and other organisations, such as FWAG and FRCA to achieve biodiversity aims, including through a new Kent Area initiative to achieve strategic habitat enhancements where flood defences are carried out with the Agency contribution funded by the Local Flood Defence Committee.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Promote through partnership opportunities for specific habitat creation and management and conversion of pill-boxes throughout the catchment for otters/bats. | Increase wildlife habitats within the Medway catchment. Help achieve BAP targets through promotion key habitats suitable for key species. | Cost. Resources. | M | EN Kent WT LPAs Conservation Groups Industry |
| Extend monitoring programmes throughout the catchment for water vole, white-clawed crayfish otter and shad. Biotoxicity study of the concentration of different pollutants in eels. | Satisfy national and local BAP targets. | Resources. | M | BAP Steering Groups, Conservation Groups SEORP Landowners Countryside Management Projects |
| Prepare a Medway catchment BAP for water related species. | Increase understanding of these species and identify priorities for action. | Resources. | L | EN Kent WT Conservation Groups SEORP |

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Implement strategic habitat enhancements; create a refuge for otter between Maidstone and Tonbridge, safeguard the white-clawed crayfish site on River Eden, identify ten key habitat sites for water vole.<br>Implement priority modification to river crossing under bridges. | Achievement of biodiversity aims. | Resources. | L | FWAG<br>FRCA<br>Local Flood Defence Committee<br>Landowners/ SEORP<br>CMP |
| Adopt best practice in Agency flood defence operations and ensure water level management on the Hoo Peninsula is conducive to water vole. | Promote water vole conservation. | Resources. | M | FRCA<br>EN<br>IDB<br>Landowners<br>Conservation Groups |
| Increase and harmonise ecological monitoring for indicator species such as water vole, otter and white-clawed crayfish. | Increased understanding of ecology of Medway catchment.<br>More accurate basis upon which management decisions can be made. | Resources. | L | EN<br>KWT<br>Conservation Groups<br>RSPB |
| Raise awareness and improve liaison with local authorities and statutory undertakers over biodiversity issues in the Medway catchment. | Maximises opportunities for protection and enhancement of the environment through proposed development. | Resources. | L | LPAs<br>statutory undertakers |
| Do nothing. | No cost. | Continued loss of important biodiversity.<br>Failure to meet Government targets. | - | - |

## Issue 6: Spread of invasive species and diseases

Several animal and plant species have been introduced into the Medway LEAP area and compete directly with our native species. Plant species such as the giant hogweed, Japanese knotweed, Himalayan balsam and Australian stonecrop flourish on British soils, to the detriment of wetland and riverine species. The Chinese mitten crab

is thought to threaten the native white-clawed crayfish (BAP species) and also undermine flood defence structures, particularly at Allington. A need has become apparent to control the spread of these species and start eradicating them from areas where they currently exist, beginning with area of high priority such as designated sites for nature conservation and habitats listed in the BAPs. Giant hogweed which is particularly prevalent in the Medway from Tonbridge to Maidstone and in other parts of the catchment can cause skin irritation and should be eradicated to enhance enjoyment of the river environment.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Assist landowners, local authorities, fishing clubs and other interests in identifying and implementing a strategy for the control of giant hogweed. | Preservation of native species and habitats. Protect angling and recreation interests. | Cost. Resources Difficulty in effective control. | M | EN Landowners LPAs Angling Clubs |
| Monitor the spread of alien species which live in or near water and review Agency policy as appropriate. | Provides baseline information in order to determine policy. | Resources. | M | Landowners EN |
| Assess spread of alder root disease (*Phytophthora*). | Maintenance of alder enhances ecology and riverbank stability. Baseline information to assist Forestry Authority in studies to find cause and treatment of disease. | Resources. | L | Forestry Authority |
| Do nothing. | No cost. | Continued threat to natural environment, a BAP species recreation and river banks. | | |

## Issue 7: There are barriers to the movement of fish on the Medway

Weirs and sluices can act as barriers to the movement of fish, particularly migratory salmonids and there are a number of these structures in the Medway catchment. Such structures can prevent fish from reaching the breeding areas in the upper catchments which can thus lead to a decline in the status of certain fisheries. In high flows under flood events, fish may be displaced downstream and are unable to return upstream due

to these barriers. Furthermore, the opening of these gates can lead to the permanent displacement of fish downstream. Remediation measures have been undertaken in the form of fish passes, but some of these are ineffective as flows passing though them are too great for some fish species e.g. coarse fish. These in-river structures, in particular the Allington sluice have contributed to the overall decline in the status of fisheries in the Medway catchment. However the sluice is required to maintain river levels for river abstraction.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Review the status and function of in-river structures. | Information provided to consider strategy. | Cost. | L | LPAs<br>Landowners |
| Prepare a strategy to determine how much of the Medway could be opened to migratory fish. | Potentially increased passage of fish throughout the catchment. | Cost.<br>Resources.<br>Potential threat to flood defence.<br>Loss of recreation features. | M | LPAs<br>Angling Clubs |
| Implement strategy, of appropriate construction of viable fish passes and weirs (for both salmonids and cyprinids) as appropriate.<br>Modify existing passes where necessary. | Allow the uninhibited passage of salmonids and cyprinids throughout catchment.<br>Creation of desirable pool/riffle sequences.<br>No risk to flood defence. | Cost.<br>Resource. | H | Angling Clubs |
| Do nothing. | No cost. | Decrease in status of fisheries in catchment. | - | - |

## Issue 8: Sustainable fisheries management

In the Medway LEAP area, there are a number of problems affecting the sustainable management of fisheries. These include the maintenance of riverine habitats for fish, the control of fish stocking procedures, the control of alien fish species, angling regulation for both coarse and game fish and the control of illegal fishing practices. Abstraction intakes can potentially also affect fish stocks. Such issues are important both from an ecological and commercial viewpoint.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Monitor for shad in the tidal estuary, including for recruitment. | Continued protection for this important BAP species.<br>If recruitment is proved, could grant SAC status to the tidal Medway.<br>Consequence for the whole of the Medway catchment. | Resources. | L | MAFF<br>Commercial fishermen<br>Kent and Essex Sea Fisheries Committee |
| Examine the potential for powers to control fishing on the tidal Medway up to Allington. | Enhance fish stocks on the lower Medway.<br>Improve protection for migratory fish. | Resources for regulation. | L | Medway Ports Authority<br>Kent and Essex Sea Fisheries Committee<br>Commercial fishermen |
| Maintain or improve current levels of fisheries enforcement. Set targets for a reduction in poaching and in the number of unlicenced rod and line anglers/commercial eel nets. | Protection of fish stocks.<br>Increased quality of angling. | Resources. | M | Angling Clubs<br>Police |
| Monitor and assess impacts of abstraction intakes. Review abstraction screening operations with respect to Section 14, Salmon & Freshwater Fisheries Act 1975. | Protection of fish stocks.<br>Increased quality of angling and commercial fishing. | Resources.<br>Potential operational problems for water companies and industry. | L | Angling Clubs<br>SWS<br>Industry |
| Proactively remove introduced fish species where populations are known to exist and continue control of introduced fish species, especially catfish using powers under ILFA (Importation of Live Fish Act 1980). Prevent the stocking of carp to chalk streams in the catchments. | Conservation of native fish stocks.<br>Preservation of angling quality and river habitats. | Resources. | L-M | MAFF<br>Angling Clubs |

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Advice to angling clubs and organisations on fisheries management. | Partnership opportunity. Conservation of native fish stocks. Preservation of angling quality and river habitats and control of bank erosion. Develops new fisheries. | Resources. | L | Angling Clubs Conservation Groups |
| Stocking of all fish into the Medway should ideally be carried out with native fish. | Conservation of native fish stocks. Avoidance of introgression. Preservation of angling quality. | Resources. | L | Angling Clubs |
| Do nothing. | No cost. | Potential degradation in fisheries. | - | - |

**Issue 9: Increased incidence of coastal and river bank erosion and associated siltation**

The effects of erosion, either natural or as a result of navigation or artificial river management, are evident throughout the Medway catchment. On the Hoo peninsula this results in loss of foreshore and, if unchecked, to the breaching of the sea defences. Inland, new flood control structures can change the flow regime causing increased erosion (and siltation), particularly in areas not previously affected. This has occurred at Porters Lock and East Lock as well as possibly at the Leigh Barrier. Turbulence caused by boats upstream of East Farleigh Bridge is threatening the integrity of the moorings and the towpath, while general erosion is occurring at the Garden of Remembrance in Tonbridge and Anchor Sluice moorings.

Apart from these causes, erosion can also be caused by ground conditions, loss of vegetation on river banks, removal of vegetation and cutting of steps by anglers or excessive use by walkers and cyclists. Subsequent siltation can reduce the potential for water sports in some areas, e.g. Haysden Lakes and the River Eden.

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Identify areas at risk and prioritise in terms of need for remediation. | Strategic approach to bank management. | Cost. | L | Landowners |
| Identify causes where possible and implement controls and regulation. | Sustainable remedy. | Cost. | L | Landowners<br>Angling Clubs<br>Boaters<br>Riverside users |
| Carry out remediation works. | Control of erosion. | Cost. | H | Landowners |
| Do nothing. | No cost. | Failure of banks with subsequent effect on conservation, recreation and navigation. | - | - |

**Issue 10: Redevelopment of older waterside areas seeks to maximise the use of the land**

Local authorities, landowners and developers recognise the value of developing next to water either for the added value of such locations or for the regeneration that such developments can bring. This is recognised in areas such as Rochester and Chatham riverside, Strood and Chatham Maritime. However, such development needs to take into account other, often apparently conflicting, interests. River corridors are invaluable habitats for wildlife, are valued for recreation (walking, cycling, angling) and can provide opportunities for navigation for river traffic (particularly downstream of Tonbridge). Frequently, these developments include a 'hardening' of the river frontage e.g. Strood, Whitewall Creek, Rochester. This may be acceptable where there is a recognised need, for example to protect a heritage feature, but the opportunity may be lost to create river frontages or embankments which offer opportunities for enhancement or accommodating other interests. The Malta Inn at Allington has recently been redeveloped attracting more visitors to the river bank. This has placed more pressure on the river bank but no contribution has been made to enhance access for walkers, protect and maintain the bank, provide moorings or create habitats. On the Isle of Grain redevelopment must take into account English Nature's requirements for protection of the SPA.

In future the Agency will wish to work closely with local authorities, developers and others with an interest in the waterside or wetlands e.g. English Nature, Kent Wildlife Trust, Medway River Project, to ensure that such opportunities for maintenance and enhancement are not missed and can be implemented via planning obligations if necessary. Frequently such sites are contaminated from previous uses and careful investigation and remediation are needed before they can be adapted to new uses (see Issue 18).

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Improve liaison between local planning authorities and the Agency. | Identifies opportunities at early stage in redevelopment process. | Resources. | L | LPAs |
| Provide local planning authorities with suggested policies, conditions and obligations. | Agency's interests protected. | Resources. | L | LPAs |
| Liaise and assist local planning authorities with development of design briefs for redundant areas. | Optimises environmental protection. | Resources. | L | LPAs |
| Encourage developers to take access, habitat, heritage and surface water drainage as well as pollution control into account when preparing development proposals. | Protection and enhancement of the environment. | Resources. | L | Developers |
| Do nothing. | No cost. | Continued degradation of riverbanks. | - | - |

## Issue 11: Protection of river flows in River Beult

Under low flow conditions, the flow in the River Beult is heavily dependent on the input from a number of local waste water treatment works. Problems are then experienced with nutrient enrichment of the river which can lead to eutrophication. Pressure is being placed on Southern Water Services to improve the effluent quality from these works by nutrient removal. The closure of existing works could adversely affect river flow during the summer and the Agency will therefore oppose developments which involve closure of such works or changes in the sewerage infrastructure and number of discharge points.

The Agency has a Memorandum of Understanding with English Nature and is currently producing a strategy and protocol for the River Beult which, when implemented, will serve to protect the river from deterioration.

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Develop conservation strategy for River Beult. | Establish objectives | Resources. | M | EN |
| Oppose new housing development in River Beult catchment. | Prevents worsening of problem. | Resources. Constraint to development. | M | LPAs SWS |
| Implement additional treatment at each existing works. | Maintain river flow and improves quality. Development not constrained. | Cost to water company. | L | SWS |
| Do nothing. | No cost | Continued low flow problems and eutrophication. | - | - |

**Issue 12: Need to improve our understanding of flow and water quality in the upper Medway estuary**

Water quality in the upper Medway estuary is at times very poor. This reach receives a large volume of industrial and sewage discharges. The upper estuary has a very long natural residence time and during drought periods when very little flushing flow is released to the estuary, the dissolved oxygen reduces to zero with loss of fish life. The continuing enforcement of minimum residual flows is therefore necessary to protect water quality in the estuary. However, the recent instances of rapid quality deterioration at times of low summer flow point to the need for a better understanding of how variations in river flow affect the quality of water in the upper estuary. This may in turn lead to a review of the minimum residual flows and other conditions currently governing abstraction, effluent discharge and the temporary emergency measures authorised under drought orders and permits.

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Implement the Medway Estuary Project which includes reviewing flows, abstraction, discharge consents and drought management. | Improve understanding of relationship between flow and water quality in the estuary. | Resources. | H | Water companies<br>Industry |
| Review Medway flow conditions. | Opportunities to improve water quality. | Resources. | L | Water companies |
| Review abstraction licences for water companies, industry and farmers. | Optimises abstraction potential. | Resources. | L | Water companies<br>CLA<br>Industry |
| Review discharge consents of industry and sewage discharges. | Improve water quality. | Resources. | L | Industry<br>SWS |
| Prepare a Drought Management Plan. | Improve water quality and flow conditions. | Resources.<br>Effect on abstractions. | L | Water companies |
| Do nothing. | No cost. | Continued low flow and quality in estuary. | - | - |

## Issue 13: Impacts of flood defence operations on Medway tributaries on habitats and fisheries

River engineering in terms of flood defence structures has resulted in the channelisation of watercourses and a decline of bankside habitats.

Channelisation has led to increased flows within rivers, leading to the decrease in bankside and in-river vegetation and to a homogeneous physical riverbed, thus affecting potential habitats for both flora and fauna. Furthermore, the confinement of rivers through flood defence schemes has lead to a reduction in important flood-plain habitats, which have largely disappeared throughout the LEAP area. Weirs and sluices act as barriers to the migration of fish, as discussed in Issue 7. Bankside maintenance for flood defence has resulted in the reduction of riparian vegetation, which are important habitats forming corridors alongside rivers and streams. Moreover, bankside vegetation also acts as an important "buffer strip" between the river and surrounding land-use and exerts an influence upon the ecology and quality of rivers. These are of real importance for conservation, fisheries and water resources.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Design and implement tree management programme. | Reduce excessive shading where necessary; increase woodland cover where appropriate. Enhancement of traditional landscape. Bankside stabilisation. | Cost. Permission from landowners. Can affect flood defence river maintenance operations. | M | EN Forestry Authority MAFF Kent WT Conservation Groups Landowners |
| Review of all flood defence operations, identifying structures/operations which can be modified to balance the needs of flood defence, conservation and navigation. | Benefits to conservation, recreation and fisheries. Increase landscape value of the area. Creation of new wetland habitats. | Resources. Co-operation from landowners. Compensation necessary for some landowners. Land drainage maintenance. | H | MAFF Public LPAs EN Conservation Groups Angling Clubs Landowners |
| Review the potential for the reinstatement of meanders where they once occurred and re-establish pool/riffle sequences. | Benefits to conservation, recreation and fisheries. Increase landscape value of the area. | Cost. Resources. Co-operation from landowners. Compensation necessary for some landowners. | L - H | MAFF Public LPAs EN Conservation Groups Angling Clubs |
| Placement of environmental engineer within Flood Defence Department. | Ensure that all future operations will take conservation into account. Facilitate option identified above. | Cost. | L | |
| Do nothing. | No cost. | Degradation of river habitats and species. | - | - |

## Issue 14: Protection and enhancement of wetland and riverine habitats

Within the Medway LEAP area there are three areas which have been designated as internationally important areas for nature conservation under the Habitats Directive. The Agency is obliged to review its consents and authorisations for such sites (see Kent LEAP) and is awaiting advice on the selection of environmental constraint criteria to bridge the gap between consent conditions and stated conservation objectives for European and internationally designated sites. There are also several national and numerous local designations. These areas should be prioritised in terms of habitat conservation.

Agricultural improvements, previous river engineering practices, and lack of, or poor, maintenance have all contributed to the destruction and degradation of wetland and riverine habitats and loss of species. Action is now required to prevent further damage to, or loss of, remnant habitats, and to improve existing habitats. Furthermore, opportunities currently exist within the Medway catchment to create new habitats, such as gravel pit lakes and wetland areas near Tonbridge.

The Agency is obliged by MAFF to produce Water Level Management Plans for SSSIs and other key habitats, and such plans have been produced for the River Beult and South Thames Marshes. However, problems of sustainable water resource management exist outside of these designated areas. Low flows in some stretches in the Medway catchment have exacerbated the effects of pollution by providing insufficient dilution of agricultural run-off and sewage effluent (see Issue 11). Low flows can also lead to increased sedimentation and act as barriers to the movement of fish. Wetland habitats need a sufficient water level in order to maintain their full wildlife potential. Habitats of particular concern in the Medway LEAP area include grazing marsh habitats on the Hoo Peninsula, reedbeds in Wouldham, Halling and Burham Marshes and heathland in Ashdown Forest.

| **Options for action** | **Advantages** | **Disadvantages** | **Financial Cost** | **Potential Partners** |
|---|---|---|---|---|
| Promotion of buffer strips along watercourses. | Reduce runoff, sedimentation and nutrient enrichment. Development of wildlife corridors. | Cost of both scheme and potential compensation. Permission and co-operation from landowners. | M | MAFF<br>EN<br>Kent WT<br>Conservation Groups |
| Increase amount of land under agri-environment schemes. | Protection of rivers and wetland habitats. | Cost.<br>Expense of incentive scheme(s). | M-H | MAFF<br>LPAs<br>FWAG<br>FRCA |
| Reduce the impacts of boating upon bankside habitats principally along the non-tidal Medway Navigation. Raise environmental awareness amongst boaters. | Conserve key riverine habitats, including those listed on the BAPs. Increase aesthetic value for boaters. | Cost.<br>Resources. | L | Boating organisations<br>Conservation Groups |
| Consider water level management plans and targets for key wetland habitats outside of designated areas. | Protection of key river and wetland habitats and biodiversity. | Resources.<br>Cost. | M | Landowners<br>KWT |

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Implement actions identified in Water Level Management Plans for South Thames Marshes and River Beult. | Coherent focused approach to protection and enhancement of riverine and wetland habitat species. | Resources. Cost. | M' | EN Landowners Conservation groups |
| Establish minimum residual water levels for all stretches of the Medway. | Protection of key river and wetland habitats and biodiversity. Benefit to status of fisheries. | Resources. Cost. Restriction on water resources. | M | SWS MAFF Industry |
| Do nothing. | No cost. | Continued loss of important habitats. Failure to meet Government targets. | - | - |

**Issue 15: Non-compliance with EU standards and Agency objectives for water quality**

While the majority of the watercourses in the area comply with EU Directives and their River Ecosystem (RE) targets and Water Quality objectives, some problem areas do exist which require investigation by the Agency. There are a number of compliance problems for effluents discharged from Sewage Treatment Works and from the sewerage system via Combined Sewer Overflows (CSOs). Some of the issues are already being addressed by SWS in their Asset Management Plan (AMP2) commitment. Improvements to sewage treatment works operated by the water companies are subject to funding approved by OFWAT, the water industry's regulator. OFWAT have now initiated AMP3, the next periodic review of water company prices, which will run from 2000-2005. The Agency has proposed a number of schemes for investment in this period and these are currently being negotiated with the water companies and OFWAT (see Issue 11). Some rural areas are without mains sewerage in the catchment and this does cause occasional problems and first time rural schemes should be encouraged in such circumstances.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Continue AMP2 commitments, especially with respect to Somerhill Stream. | Achieve compliance. Improve environmental quality. | Failure to comply with AMP2. Cost. | M | SWS |
| Review the status of Combined Sewer Overflows (CSOs) with respect to their licensing and control. | Achieve compliance and improve water quality. | Cost. | M | LPAs SWS |
| Encourage first time sewerage schemes throughout the Medway catchment. | Improvement in water quality. | Cost. | M | LPAs |
| Aim to increase the length of river designated under the Freshwater Fisheries Directive (both Cyprinid and Salmonid). | Increased protection for fisheries within the catchment. Benefit to ecology of Medway. | Cost. Resources. | M | SWS |
| Do nothing. | No cost. | Continuing non-compliance. Degradation in environmental quality. | - | - |

## Issue 16: Intermittent pollution of watercourses

The Medway is a particularly sensitive catchment in terms of water quality due to the presence of water supply intakes and occasional low flows as a result of river abstraction. For this reason, the prevalence of serious pollution incidents, discrete discharges and diffuse pollution is of concern to the Agency. Pollution incidents frequently occur as a result of the intensive road and rail network in the catchment and from spillages at industrial estates. Increased shipping along Chatham reach and the barging of oil to factories is leading to increasing concern of oil pollution and a Medway Emergency Pollution Plan has been prepared. Diffuse pollution from previous contamination such as that at the pesticide production site at Yalding needs to be identified and controlled. The catchment contains two nitrate vulnerable zones at Boxley and Thurnham north east of Maidstone where application of fertilisers has to be controlled to protect the chalk aquifer.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Extend oil storage regulations to industrial sites. | Improved environmental protection. | Increased inspections required. | M | DETR<br>Industry |
| Ensure all new transport routes have in-built pollution control systems designed in - Agency to provide design details. | Improved environmental protection. | Cost. | M | Highways Agency<br>LPAs<br>Developers |
| Undertake Catchment Protection Plan inspections. | Identify potential hazards and protect environment. | Resources. | M | SWS<br>Industry |
| Implement Medway Emergency Pollution Plan | Facilitate protection of resources in the event of accident. | Resources. | M | Medway Ports Authority |
| Implement remedial works to contaminated pesticide site at Yalding. | Reduced risk to water resources. | Costs. | L | Landowner |
| Increase control of discharges from industrial estates. Increase environmental awareness within industry, highlighting benefits of environmentally sound operations. | Improvement in water quality. Benefits of environmental awareness can be realised financially by different companies. | Resources. | L | Industry<br>LPAs |
| Promote increased environmental awareness amongst landowners as to the use of agrochemicals (fertilisers, herbicides, pesticides). Enforce tighter control of their use near watercourses and in NVZs. | Protection of biodiversity within the Medway catchment. Reduce intermittent agricultural pollution. Improvement in water quality. Protection of water resources. | Cost.<br>Resources. | M | Landowners<br>MAFF<br>FRCA/FWAG |
| Reduce point source pollution from waste disposal sites. | Improvement in water quality. | Cost.<br>Resources. | M | Industry<br>LPAs |

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Control discharges from houseboats. Increase environmental awareness amongst boaters, making them aware of new bylaws to prevent discharges from boats. | Protection of the "Navigation". Improvement in water quality. | Resources. | L | Public<br>Medway Ports Authority |
| Do nothing. | No cost. | Continued risk of pollution incidents. | - | - |

## Issue 17: How to manage the access to water for recreation in the Medway catchment

Given its proximity to London and the growth areas of the Medway towns there is increasing pressure on the Medway as a leisure resource. This includes walking, boating, fishing and canoeing. However the catchment and the river valley in particular is also valued not only for its conservation attributes but also for its quiet areas away from the towns and busy roads. The Agency is therefore concerned to ensure that access to water is managed in a responsible way in the best interests of the community. In doing this it has to respect the environmental capacity of locations to accept further visitors and to maximise that capacity where possible and appropriate.

| Options for action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Promote recognition of Bewl Water rather than Leybourne Lakes as a regional water-based recreation centre. | Achieve balance between conservation, recreation and development. | Capacity of Bewl Water environment. Travel | L | Landowners<br>Southern Water |
| Prepare and implement a strategy for provision of moorings and launch sites on the Medway Navigation. | Provides additional facilities in appropriate locations. | Cost. | M | Landowners<br>Medway River Project |
| Ensure works to renew Medway Navigation Structures enhance recreation wherever possible. | Control illegal use and provide new opportunities such as canoe passes. | Potential conflict with operational needs. | M | Recreation groups<br>Angling Clubs<br>Medway River Project |
| Do nothing. | No cost. | Risk of inappropriate developments. | - | - |

**Issue 18: Redevelopment of industrial areas needs to ensure that any contaminated land is appropriately remediated**

There is considerable pressure for housing development in the catchment and, because of its recent industrial history, there are frequently opportunities to allocate industrial land for such development. This requires the identification of such land (in partnership with local authorities and English Partnerships), confirmation of other elements of the environment at risk, e.g. aquifers, deciding on the appropriate after use and implementation of a strategy for remediation. This has happened for example at St Mary's Island in Chatham where the contaminated ground from previous uses was entirely removed before redevelopment for 2000 houses. Frequently such removal is not necessary, depending on the risks and after-use and a "fitness for purpose" approach is government policy. The use of such land conforms with Government policy and relieves pressures on the wider countryside. This issue is particularly relevant to the riverside areas in Rochester, Strood and the Isle of Grain.

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Identify areas of contaminated land and confirm environmental risks. | Reliable database. | Cost. | M | LPAs |
| Decide on appropriate after-use and implement remediation strategy. | Efficient use of brownfield sites. Protection of greenfield sites. | Cost. | L | English Partnerships Landowners LPAs |
| Do nothing. | No cost. | Potential environmental risk. Loss of greenfield land. | - | - |

**Issue 19: Extraction of minerals may create environmental impacts within the catchment**

The Medway catchment is one of the principal areas of mineral extraction in Kent with cement production being the main related industry. Chalk and clay are required for the production of cement. At present in the Medway, the principal cement works is at Rochester using chalk from the Halling quarry. This is likely to be worked out within the next three years and the Agency will wish to be involved in the after-use of the resultant lake. BCI are proposing to close the other cement works at Northfleet - outside the catchment and move to Holborough (see Issue 4).

Clay for cement is currently supplied from Essex via pipes under the Thames estuary, but this may not be viable for the Holborough works. An additional use of clay is for coastal sea defences along the North Kent coast. Reserves for Halling are taken from

clay pits at Wrotham which are due to be used by 2009. Consequently, new clay reserves will be required.

The considerable amount of development to take place in the Medway catchment including the CTRL will require an adequate supply of construction aggregate. This is recognised by the Kent Minerals Local Plan which has proposed areas within the catchment to be promoted as Areas of Search. These include areas at Hoo peninsula, Isle of Grain, Borough Green and the Medway valley to the east of Tonbridge as far as Paddock Wood. Care will be required to ensure that the riverine environment is conserved and enhanced as a result of such operations.

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Agency to be involved in options for restoration and after-use of Halling lake. | Potential wildlife and recreational resource. | Resource. | M | Landowner |
| Agency to be involved in search for new clay, sand and gravel reserves. | Minimisation of environmental impact. Opportunities for wetland creation for fishing, wildlife and recreation. | Resources. | M | Mineral Companies |
| Do nothing. | No cost. | Potential environmental impact. | - | - |

## Issue 20: Spreading of paper sludge wastes on agricultural land

Papermaking is historically a major industry in the Medway catchment and remains so to this day. Sludge from the papermills outside the Medway catchment is occasionally spread on agricultural land and the practice is of increasing concern to the Agency. The practice is of uncertain agricultural and ecological benefit and on occasions can cause odour problems. Experiments are being undertaken to investigate the possibility of composting this sludge although the lack of nutrients is a problem. This may be resolved temporarily by the addition of algal biomass removed from the River Beult which is suffering from eutrophication (see Issue 11).

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Investigate composting of papermill sludge. | Reduced loading on land. | Development costs. Need nutrient source. | L | Papermills |
| Study agricultural and ecological benefits of papermill sludge. | Identifies uses and locations for sludge deposits. | Resources. Cost. | M | MAFF EN Papermills |
| Do nothing. | No costs. | Continuation of sludge spreading problems. | - | - |

## Issue 21: Waste management options for the Medway catchment

Currently most of the catchment's domestic and industrial waste goes to relatively few major landfill sites which are approaching capacity. Waste is also exported outside of the catchment and the county. Few new landfill sites are available and several energy from waste incineration schemes are being proposed. Some local authorities see this as being the only possible option but others are concerned at the effects on property and health. Such operations will need planning consent from the relevant local authorities and IPC consent from the Agency. The Kent Air Quality Management System provides a methodology for assessing the cumulative effects of such proposals. The Agency is presently forming its view on the planning application consultation for the Allington waste to energy plant proposal.

| Options for Action | Advantages | Disadvantages | Cost | Potential Partners |
|---|---|---|---|---|
| Increase waste minimisation and recycling initiatives. | Reduces need for waste disposal. | Need for education. | M | LPAs Public |
| Incineration and waste to energy schemes. | Comply with proximity principle and energy generation. | Public perception. Potential air quality effects. | M | LPAs Waste Contractors Public |
| Do nothing. | No cost. | | - | - |

## Issue 22: Pollution risks from Fort Horsted tyre dump

Millions of tyres have been dumped at Fort Horsted, an old Napoleonic fort at Chatham. The dump closed in 1988 and now represents a considerable fire risk with consequent implications for surface and groundwater quality and atmospheric pollution. There is an urgent need to resolve this situation and provide for the disposal of the tyres and the reclamation of the site. Blue Circle are currently

undertaking experiments with the use of tyres as a fuel at their cement works at Westbury in Wiltshire which could be an option for disposal.

| Options for Action | Advantages | Disadvantages | Financial Cost | Potential Partners |
|---|---|---|---|---|
| Undertake feasibility study of options for site remediation and disposal of tyres. | Removal of risk. | Resources. | M | Landowners LPAs |
| Do nothing. | No cost. | Potential risk to water and atmosphere. | - | - |

## 4.0 A BETTER ENVIRONMENT THROUGH PARTNERSHIP

### 4.1 Introduction

The Agency is well placed to influence many of the activities affecting the environment through the Environment Act 1995 and other associated legislation. The Agency must work in partnership with others to ensure that where appropriate the options for action included in Section 3 become real actions and are implemented so that the environmental issues are addressed. General partnership opportunities have been presented in the Kent Area LEAP. We are currently involved in the Medway catchment in many projects and activities that rely on such partnerships and some of these are listed below.

We welcome new partnership opportunities in the catchment and we would be pleased to hear from individuals or organisations with any such proposals; please contact us at the address on the cover.

- Medway River Project

  The Medway River Project is a partnership between the Agency, Kent County Council, Tonbridge and Malling Borough Council, Maidstone Borough Council, Medway Council and the Countryside Commission and has the primary aim of enhancing the Medway Valley in the "Navigation" as a green corridor for the benefit of wildlife and the local community, through the promotion of community awareness and action.

- South East Otters and River Project

  The Agency funds the South East Otters and Rivers Project hosted by Kent Wildlife Trust. The project is taking the lead in otter conservation in Kent and assisting with water vole conservation. The priority for action in habitat improvement and an otter strategy for the catchment is being prepared. This will be followed by targeted action on a river by river basis.

- Internal Drainage Boards

  Within the Medway catchment there are 3 IDBs: the Commissioned Areas East and West of Gravesend, the Lower Medway and the Upper Medway. These were set up following the Land Drainage Act (LDA) 1930, to deal with specific drainage problems in relatively low-lying agricultural areas and still carry out this work today.

  The powers of the IDBs and the Agency are clearly defined by the Land Drainage Act 1991 and the Water Resources Act 1991. Within an Internal Drainage District the IDB supervises all matters relating to land drainage. These powers do not extend to any 'main river' within

an Internal Drainage District. Agency staff work in partnership with the IDBs to assist them with promoting more environmentally sensitive management practices.

- Medway and Swale Waste Minimisation Project

  Over the last two years, the Medway and Swale Waste Minimisation Project has helped companies minimise waste at source and has been backed by the Agency and Kent County Council. It has been co-ordinated by the Centre for Exploitation of Science and Technology and supported by the Government's Environmental Technology Best Practice Programme.

- South East Water Forum

  The Environment Agency works closely with the water companies in the Kent Area and through the South East Water Forum in order to manage water resources in the area to achieve the proper balance between water development objectives and the needs of the environment.

- Kent Air Quality Partnership

  EA95 Part IV places responsibility for local air quality management on the local authorities. They are required to carry out a three stage review and assessment of air quality within their boundaries, taking into account factors from neighbouring areas. The Agency is a consultee to this process. The review must assess whether it is likely that air quality objectives laid down in the Air Quality Regulations (SI 1997 No 3043) will be complied with by the 31 December 2005. If it is likely that one or more of the objectives will be breached, the Local Authority is required to designate that area where the breach is likely to occur as an air quality management area. An action plan must be prepared which sets out the measures required to achieve these objectives..

  The Agency's role is one of liaison, support, technical consultation and provision of data relating to Part A IPC processes. Part B IPC processes (those with lower potential to pollute) are already regulated by Local Authorities under the Local Authority Air Pollution Control (LAAPC) provisions of EPAO Part 1.

  The Kent Air Quality Partnership is an existing forum which promotes co-operation and co-ordinated action on air quality issues. It is the custodian of an emissions inventory and air quality model which are now being used to facilitate member Local Authority Air Quality Reviews. The Agency is a full member of the partnership and KCC provides secretarial facilities.

The air quality model is also used by KCC to assist with planning decisions by the evaluating the impact of proposed developments.

- Farming and Wildlife Advisory Group

  In collaboration with Kent County Council, East Sussex County Council and West Sussex County Council, the Environment Agency Kent Area Office has supported the advisory work of the Kent and Sussex Weald Farming and Wildlife Advisory Group (FWAG) post since September 1994. This is in recognition of the high percentage of advice provided to landowners relating directly to the protection, enhancement and creation of watercourses and wetlands. The work delivered contributes to Agency Conservation aims through, for example, the production of farm reports, Countryside Stewardship applications and farm biodiversity action plans.

- Colleges and Universities

  Through our collaborative projects programme, much conservation and recreation benefit is achieved and valuable partnerships with other organisations are formed and strengthened. Potential new partnerships could be formed with academic institutions. For example, the Agency hopes to set up some research projects to monitor key water vole populations, possibly on Cliffe and Cooling and Dartford Marshes, in collaboration with Greenwich University.

- Kent Sustainable Business Partnership

  The Agency is a partner in the Sustainable Business Partnership project led by Kent County Council which is seeking to target small and medium businesses in the area.

## APPENDIX 1

## DUTIES, POWERS AND INTERESTS OF THE ENVIRONMENT AGENCY

The Environment Agency has a wide range of interests in the areas of water management, waste management and pollution prevention and control. Whilst many of these interests are supported by statutory duties and powers, much of the Agency's work is advisory, with the relevant powers resting with other bodies such as local planning authorities. The following list identifies the Agency's principal interests (full details are given in the Kent Area LEAP):

- Water Resources
- Flood Defence
- Water Quality
- Air Quality
- Radioactive Substances
- Waste Management
- Contaminated Land
- Conservation including landscape and archaeology
- Fisheries
- Recreation
- Navigation

## APPENDIX 2

## CONSULTATIONS

The following organisations were consulted during the preparation of this Consultation Draft:

Ashford Borough Council
C.B.I. - South East Region
Council for the Protection of Rural England
Country Landowners Association
Dartford Borough Council
East Sussex County Council
English Heritage
English Nature
English Sports Council, South East Region
Gravesham Borough Council
Kent County Council
Kent Wildlife Trust
Lower & Upper Medway Internal Drainage Boards
Medway River Users Association
Mid Kent Water plc
Mid-Sussex District Council
Ministry of Agriculture, Fisheries & Food
National Farmers Union
Royal Society for the Protection of Birds
Southern Water plc
Surrey County Council
Sutton & East Surrey Water plc
Tandridge District Council
Thames Water plc
The Farming & Rural Conservation Agency
Wealden District Council
West Sussex County Council

Supported by data and information supplied by Area staff.

Meetings were held with the following local authorities:

Maidstone Borough Council
Tonbridge and Malling Borough Council
Tunbridge Wells Borough Council
Medway Council
Sevenoaks District Council

## APPENDIX 3

## GLOSSARY

| | |
|---|---|
| Abstraction | Removal of water from surface water or groundwater, usually by pumping. |
| Abstraction Licence | Licence issued by the Environment Agency under Section 38 of the Water Resources Act 1991 to permit water to be abstracted. |
| Aquifer | A layer of underground porous rock which contains water and allows water to flow through it. |
| Catchment | The total area of land which contributes surface water to a specified watercourse or water body. |
| Combined Sewer Overflow | An overflow structure which allows discharge from the sewerage system to a watercourse during wet weather conditions. |
| Effective Rainfall | The rain remaining as runoff after all losses by evaporation, interception and infiltration have been allowed for. |
| Environmentally Sensitive Area | An area defined by MAFF for which grant aid is available for appropriate agricultural and water/land management. |
| Floodplain | This includes all land adjacent to a watercourse over which water flows or would flow, but for flood defences, in times of flood. |
| Groundwater | Water which is contained in underground rocks (aquifers). |
| Heritage Coast | Stretches of the most undeveloped coastline, designated by the Countryside Commission, in order to protect and conserve the coast's vulnerable beauty, and enhance people's enjoyment of the coast without risking its conservation. |
| Internal Drainage Boards | Autonomous public bodies under the control of board members (including those elected by agricultural ratepayers and those nominated by Local Authorities), with responsibilities and |

| | |
|---|---|
| | powers for flood defence on ordinary watercourses (non-Main Rivers) under the Land Drainage Acts. |
| Sea Defences | Natural or man-made features protecting land below 5m AOD contour. |
| Site of Special Scientific Interest | A site given statutory designation and protection by English Nature because it is particularly important, on account of its nature conservation value under the Wildlife and Countryside Act 1981 as amended. |
| Sustainable development | 'Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs' (definition from World Commission on Environment and Development, 1987. Our Common Future - The Brundtland Report). |

## APPENDIX 4

## ABBREVIATIONS

| | |
|---|---|
| AMP | Asset Management Plan |
| AOD | Above Ordnance Datum |
| AONB | Area of Outstanding Natural Beauty |
| BAP | Biodiversity Action Plan |
| CTRL | Channel Tunnel Rail Link |
| DETR | Department of the Environment, Transport and Regions |
| EN | English Nature |
| FRCA | Farming and Rural Conservation Agency |
| FWAG | Farming and Wildlife Advisory Group |
| IPC | Integrated Pollution Control |
| LEAP | Local Environment Agency Plan |
| MAFF | Ministry of Agriculture, Fisheries and Food |
| OFWAT | Office of Water Services |
| RSPB | Royal Society for the Protection of Birds |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| SSSI | Site of Special Scientific Interest |

## APPENDIX 5

## FURTHER INFORMATION

Further information may be obtained from the following publications which have been produced by the Environment Agency:

Sustaining Our Resources. Southern Region, Worthing. 1997

An Environmental Strategy for the Millennium and Beyond. Bristol. 1997

Policy and Practice for the Protection of Floodplains. Bristol. 1997

Viewpoints on the Environment. Bristol. 1997

Waste Minimisation and Waste Management, Bristol. 1997

The Agency's Contribution to Sustainable Development, Bristol. 1997

Water Related Recreation Strategy for the Southern Region. Consultation Draft. Southern Region/English Sports Council, Worthing. 1997

Environment Agency Corporate Plan 1998-99. Bristol. 1998

Saving Water: Taking Action. Bristol. 1998

Saving Water: On the Right Track. Bristol. 1998

Fishing in the South. Southern Region, Worthing.

Policy and Practice for the Protection of Groundwater. Bristol. 1998

Guidance for the Control of Invasive Plants near Watercourses, Bristol. 1996

Action Plan for Land Quality, Bristol 1998.

An Action Plan for Recreation, Bristol 1998.

Money for nothing - your waste tips for free, Bristol 1998.

## 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.

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

**ENVIRONMENT AGENCY GENERAL ENQUIRY LINE**
**0645 333 111**

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**

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