

Box 4

local environment agency plan

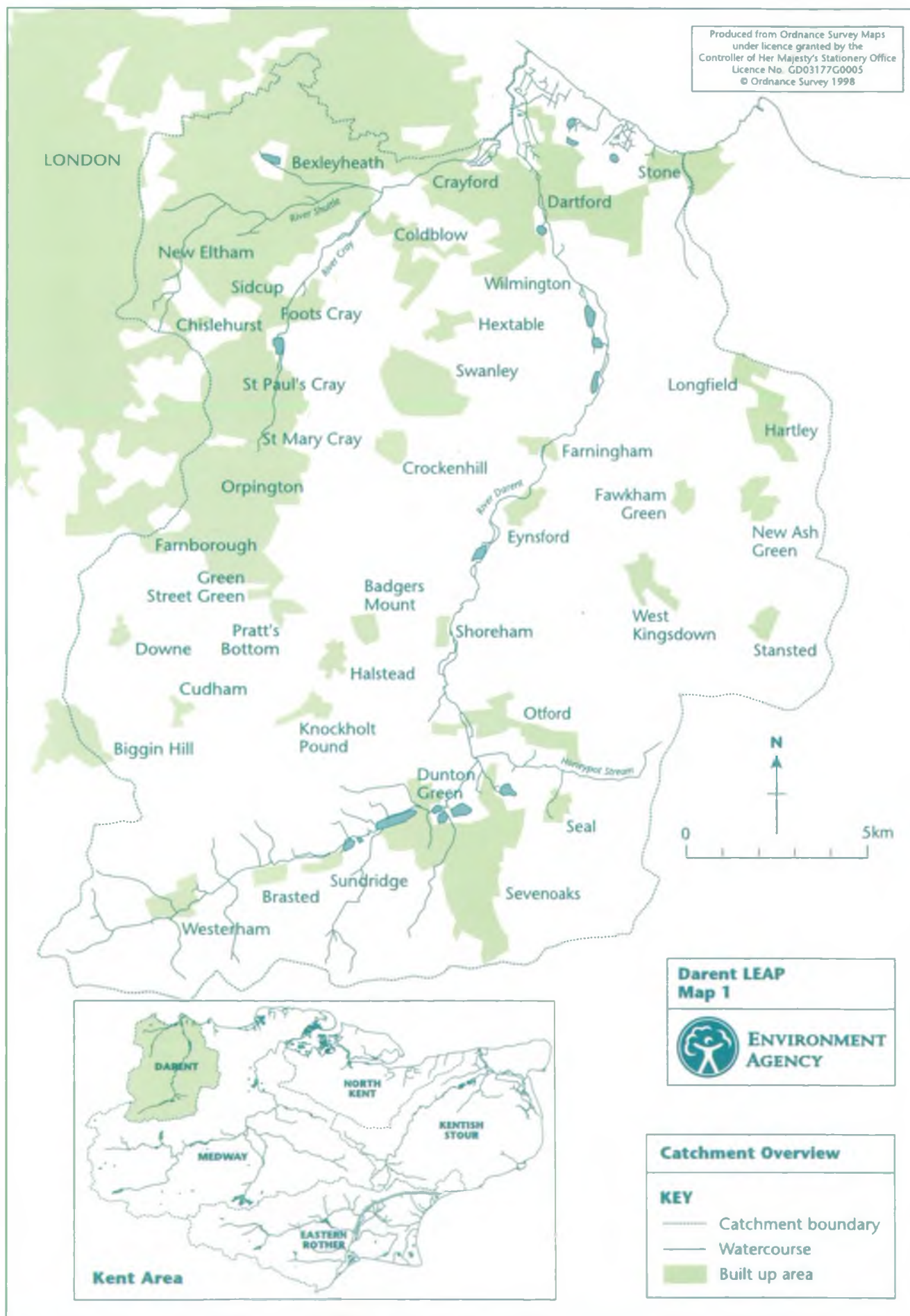
DARENT
JULY 2000



ENVIRONMENT
AGENCY

Catchment Overview

Produced from Ordnance Survey Maps
under licence granted by the
Controller of Her Majesty's Stationary Office
Licence No. GD03177G0005
© Ordnance Survey 1998



This book is due for return on or before the last date shown below.

~~- 6 JAN 2003~~

Michaela
Kennard

27/7/05

~~20/02/07~~

FOREWORD

Welcome to the Local Environment Agency Plan (LEAP) for the Darent. This LEAP examines issues specific to the catchment in support of the more strategic and broader-based issues identified in the Kent Area LEAP.

One of the fundamental objectives of the LEAP process is to involve all interested parties in working with the Agency in planning for the future well-being of the local environment. This ensures that decisions on the future management of the LEAP area are based on a range of views from interested parties. As a result, this document has been produced after public consultation following the launch of the Consultation Draft in September 1999. We are grateful to the many people who responded to the draft document. Their comments have enabled us to evaluate the issues raised in the original report and refine them into an action plan framework which sets out the work that the Agency intends to carry out in the catchment, resources permitting, in partnership with others over the next 5 years. Actions identified in the plan will be monitored and progress reviewed annually.

Many of the issues in this plan cannot be resolved by the Agency alone and are over and above the statutory duties of the Agency. This highlights the need for co-operation bringing together the complementary responsibilities, objectives and resources of different groups. The work of the Agency is increasingly being implemented through partnerships as it is recognised that we can achieve more by working together.

I hope you find this LEAP interesting and informative. I am convinced that the implementation of the actions in this LEAP will lead to improvements in the environment of the Darent catchment in this new millennium. If you have any comments or wish to become involved in addressing the issues raised, we would like to hear from you.

Thank you for your involvement in the LEAP process.



Dr Binny Buckley
Kent Area Manager



NATIONAL LIBRARY &
INFORMATION SERVICE

Manuscript
Guildford House, Guildford, Surrey GU1 2AA
Tel: 01483 300800 Fax: 01483 300801



CONTENTS**Page**

1.0. Introduction	1
1.1. The Environment Agency	1
1.2. The Environment Agency's Vision	1
2.0. The LEAP Process	2
2.1. Local Environment Agency Plans	2
2.2. Kent area approach	3
2.3. The Darent LEAP documents	3
3.0. Review of the Consultation Process	4
3.1. LEAPs and public consultation	4
3.2. Summary of responses	4
4.0. The Darent Catchment	5
5.0. A Better Environment Through Partnership	7
5.1. Introduction	7
5.2. Current partnerships and projects in the LEAP area	7
5.3. Future partnership process	8
6.0. Actions for the Darent	9
6.1. Introduction	9
6.2. Environment Agency business planning process	9
6.3. The actions tables	10
6.4. Relationship between the Kent Area & Darent LEAPs	11
Issue 1: Increased summer peak water demand arising from more extreme seasonal climate variation	13
Issue 2: Impact of sea level rise on the effectiveness of flood defences	13
Issue 3: Deterioration in the balance of water resources as a result of development of groundwater for public supply	14
Issue 4: New developments are increasing the pressure on water resources in the Darent catchment	15
Issue 5: The spread of invasive species through the catchment	15
Issue 6: Pressure on riverine biodiversity and how to achieve the Agency's biodiversity objectives	17
Issue 7: Excessive unlicensed fishing due to proximity to major urban areas	19

Issue 8:	Loss of water from the catchment	19
Issue 9:	Impact of changing patterns of water abstraction	20
Issue 10:	Accessibility to water based recreation in the Darent catchment for all people	20
Issue 11:	Management of Dartford Marshes	22
Issue 12:	Operation of weirs and sluices on the Darent	23
Issue 13:	Impact of creosote pollution and siltation at Broomwood Lake	24
Issue 14:	The need for wider adoption of best practice river management	25
Issue 15:	Potential land contamination problems	26
Issue 16:	Scrapyards and water quality	27
Issue 17:	Trans-frontier Shipments of Waste (TFS) at Thames Europort	27
Issue 18:	Flytipping	28

7.0. Future Review and Monitoring	29
------------------------------------------	----

Appendices	1	Duties, powers and interests of the Environment Agency	29
	2	Individuals/organisations who responded to the Consultation Draft	30
	3	Glossary	31
	4	Abbreviations	32
	5	Further information	33

1.0. INTRODUCTION

1.1. THE ENVIRONMENT AGENCY

The Environment Agency was established on 1 April 1996 as a result of the Environment Act 1995. The Agency was created by merging the expertise of Her Majesty's Inspectorate of Pollution (HMIP), the Waste Regulation Authorities, the National Rivers Authority (NRA) and several small units of the Department of the Environment. The Agency therefore provides a more comprehensive approach to the protection and management of the environment by integrating the regulation of air, land and water. The Agency's overall aim is to protect and enhance the whole environment and thus contribute to the goal of sustainable development in England and Wales.

1.2. THE ENVIRONMENT AGENCY'S VISION

The Agency's vision is to create: *a better environment for present and future generations.*

A better environment means different things to different people and the Agency has developed the following set of objectives to clearly focus its efforts on what it means by a better environment and what it is trying to achieve. They relate to the Agency's national objectives and to the powers and duties that it has been given by Government.

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 generated 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

Achieving sustainable development in the Darent catchment requires long term planning, careful balancing of priorities and the commitment of everyone that uses or manages the environment. The Darent LEAP will help contribute to the principle of sustainable development through integrated management and improvement.

2.0. THE LEAP PROCESS

2.1. LOCAL ENVIRONMENT AGENCY PLANS (LEAPs)

LEAPs take a long-term view of local environments and set out a five-year plan of action for solving local issues. They are non-statutory plans based on river catchments that help to fulfil the Agency's principal aim of contributing to sustainable development through integrated environmental management and improvement. LEAPs sit alongside existing statutory and non-statutory plans from other organisations and recognise that partnership working between the originators of such plans is the key to achieving their collective aims.

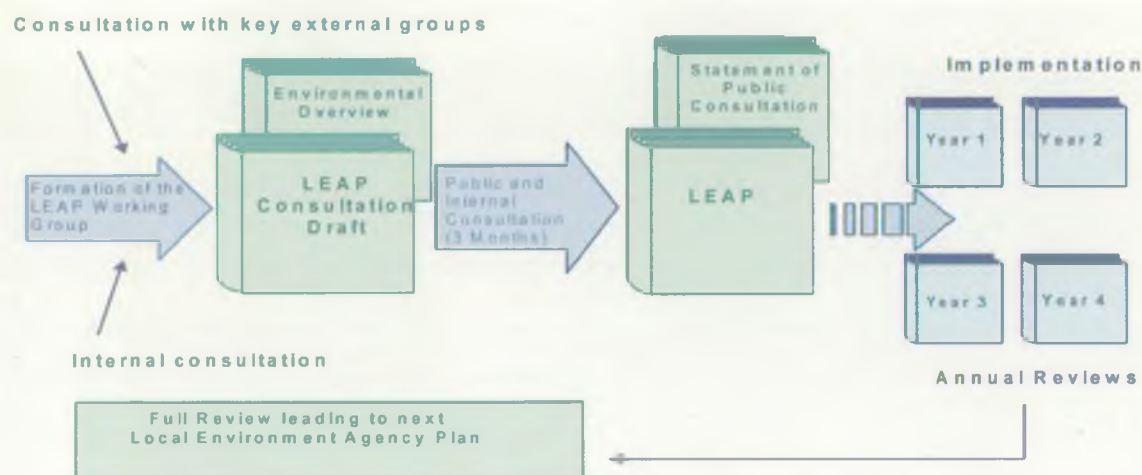
The LEAP is not designed to reflect the Agency's routine activities within the plan area. The Agency's everyday work commits substantial resources to managing the environment, including extensive monitoring and survey operations. The Agency is not responsible for regulating every aspect of the environment and for certain issues, other organisations have primary responsibility.

The Agency is committed to a programme of LEAPs as they enable the Agency to identify, assess, prioritise and solve local environmental issues, taking into account the views of local stakeholders. These will also allow the Agency to deploy its resources to best effect and optimise benefit for the local environment.

LEAPs replace the Catchment Management Plans that were produced by the former NRA and build on their success by covering all the Agency's functions. The LEAP process and documents that it comprises are shown below. LEAPs also have a role in:

- Promoting openness and accountability
- Developing closer links with public/community and other organisations
- Educating and informing the public on local environmental issues
- Realising the environmental potential of the area

Figure 1: The LEAP Process



2.2. KENT AREA APPROACH

An over-arching Kent Area LEAP has been produced addressing significant strategic issues that are common across several catchments in the Area. Specific local issues are then dealt with in a series of catchment LEAPs as follows:

Darent	Eastern Rother	Kentish Stour	Medway	North Kent
--------	----------------	---------------	--------	------------

Copies of the Kent Area and catchment LEAPs are available from the Kent area office, details of which are provided in Chapter 7 (Future Review and Monitoring) on page 29 of this document.

2.3. THE DARENT LEAP DOCUMENTS

This **Darent LEAP** sets out a programme of action which the Agency and partner organisations intend to carry out over the next five years in order to protect and enhance the local environment of the catchment. As with all such programmes, funding for these actions will be subject to availability and to changes in priority, within the Agency and externally, both locally and nationally.

The LEAP has been developed from the Consultation Draft and although it is intended to be a stand alone document, it is best used in conjunction with the documents detailed below which support it and from which it has been developed. The LEAP transforms the proposals put forward in the Consultation Draft into agreed actions in light of comments received during the consultation process. It will guide the Agency's activities in the area for the next five years and will hopefully influence the activities of other key bodies. Where more background information or greater detail of an issue is required, reference should be made to the Environmental Overview.

The Consultation Draft is the main focus for public consultation, concentrating on the prioritisation of environmental issues relevant to the Agency and the identification of possible options for action necessary to restore/improve the local environment.

The Environmental Overview is a factual description and analysis of the local environment, looking at the impact of stresses on the state of this environment. It provides background to the identification of the environmental issues of importance in the Darent for public consultation.

The Statement of Public Consultation details the results of the consultation process and the influence it has had on the development of the final LEAP.

Regular monitoring and updating are an integral part of the LEAP process. Progress in implementing LEAP actions will be monitored and reported on in a published **Annual Review**. This will also identify any additional actions needed to maintain progress in light of any changes in the LEAP Area and whether any actions need removing or amending where they are no longer appropriate.

After five years, 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 and to further improve the local environment.

3.0. REVIEW OF THE CONSULTATION PROCESS

3.1. LEAPS AND PUBLIC CONSULTATION

A fundamental objective of the LEAP process is to involve all parties interested in working with the Agency to plan for the future wellbeing of the local environment. The Agency is committed to the process of public consultation on all of its LEAPs. This section provides a brief overview of the three-month consultation period. A separate "Statement of Public Consultation" provides more specific details of the influence of the public consultation process on the development of the final document.

3.1.1. Initial Consultation

A number of organisations were consulted during the preparation of the Consultation Draft and several meetings were held with relevant organisations. The draft was put together using data and information supplied by area and regional staff and the Agency's National Centre for Environmental Data and Surveillance.

3.1.2. Launch Publicity

The LEAP was launched on 16th September 1999 at Hall Place, Bexley. Over 300 invitations were sent out to key stakeholders and approximately 75 people attended. Press releases generated interest from a number of local newspapers and radio stations. Over 400 Consultation Drafts were sent out to individuals and a broad range of organisations. Copies of the Consultation Draft and Environmental Overview were sent to the main libraries in the LEAP area. As the consultation period was drawing to a close, a "last chance to comment" press release was issued and this again generated local media coverage.

3.1.3. The Kent Environment Group (AEG)

Members of the Kent AEG represent local authorities and the wide range of interests of the Agency's customers, including anglers, farmers and local businesses. The purpose of the AEG is to advise the Agency on local environmental issues and opportunities for partnerships, and to provide feedback on Agency initiatives, including LEAPs. To this extent, the AEG is a form of partnership with the public and its contribution is highly valued by the Agency. The AEG was kept informed of the progress of the plan and given the opportunity to comment and shape the document by providing advice and information at key stages.

3.2. SUMMARY OF RESPONSES

A total of 57 consultees responded to the Consultation Draft. All comments have been considered and where appropriate and practicable, incorporated into the Plan. A number of consultees expressed an interest in partnership working and they have been included in the actions tables.

Errors and omissions were also drawn to our attention. A number of issues picked up as having been omitted had already been considered as issues in the over-arching Kent Area LEAP. It is hoped that the relationship between the two documents has been clarified in this document. A number of consultees also congratulated the Agency on producing a comprehensive document and welcomed the Agency's commitment to integrated environmental management.

4.0. THE DARENT CATCHMENT

4.1. INTRODUCTION

*... the silver Darent, in whose waters cleane
Ten thousand fishes play, and decke his pleasant streame...*

(The Faerie Queen, Edmund Spenser 1590)

The Darent has been shaped by human activity since early time and its beauty has frequently been celebrated by poets and artists. The environment seen in the Darent Catchment today is largely dependent on the underlying geology and the way it has been shaped by human and natural forces.

To the south lies the oldest formation in the area, the Lower Greensand. Above this Lower Greensand lie thin bands of Gault Clay and Upper Greensand. These are overlain by the main bed in the catchment, the thick block of Chalk forming the North Downs. Above this are smaller sections of London Tertiaries, largely corresponding with the main urban area.

The source of the Darent is to the west of Westerham and from here it flows to Otford, where it is joined by a tributary, the Honeypot Stream, which is fed by springs from the Lower Greensand and Chalk. It then flows north fed by more chalk springs, particularly to the north of Shoreham, to its tidal limit at Dartford and is joined by the River Cray in its tidal length of Dartford Creek. The River Cray rises at Orpington and runs mainly on the Chalk through the edge of the urban area where it receives extensive run-off from paved areas during heavy rain. It is joined near Bexley by the River Shuttle, which is made up almost entirely of urban run-off.

The rivers themselves provide valuable green corridors for the urban areas and opportunities for their enjoyment have been enhanced by the development of footpaths running along their lengths. They are also a focus for a range of other recreational activities including fishing and sailing in adjacent flooded gravel pits, such as those at Chipstead, Sutton-at-Hone and Ruxley, and public open spaces with visitor facilities, such as Lullingstone and Hall Place, Bexley.

With rainfall averaging 700 mm per year, the catchment is drier than the rest of the Kent area and considerably drier than most of Britain. During the droughts in the early 1990's the Darent suffered very badly from low flows and in places ran completely dry. A low flow alleviation scheme (ALF) has since been implemented to prevent the river drying out during the summer months as a result of a combination of prolonged dry weather and increased abstractions for agricultural and development purposes.

The Darent catchment lies in the north west corner of the Agency's Kent area covering the area drained by the Rivers Darent, Cray and their tributaries. It is the smallest catchment in the Kent area, with a land area of 400 km², but the inclusion of the outer suburbs of south east London and the adjoining area of Kent gives it the highest population density in the area (approximately 1000/km²). Administratively, the Darent catchment falls mainly within Kent, together with the London Boroughs of Bexley and Bromley, with small parts in Surrey and the London Borough of Greenwich.

Despite the small land area and the heavily developed suburbs, the catchment also includes a range of greatly contrasting landscapes. This varies from the marshland adjoining the Thames Estuary, which still retains some heavy industry, to the largely rural North Downs, with its scenic value recognised nationally by its designation as an Area of Outstanding Natural Beauty (AONB).

The landscape has been shaped by human activity since prehistoric times. A human skull found at Swanscombe, just outside the catchment, is one of the oldest human remains found in Britain and there have been many findings of Palaeolithic artefacts in the area, such as flint tools. More recent Bronze and Iron Age farmsteads are also relatively common. The area was heavily populated during Roman times particularly along the Darent and Cray valleys. The remains of a villa at Lullingstone form one of the most important surviving sites in this country from Roman times.

In the early industrial period the rivers were an important power source for mills, not just for corn but also other industries, such as gunpowder. Later heavier industry was developed, particularly around Dartford, initially with engineering, papermaking and pharmaceuticals and more recently power generation and gravel extraction.

These industries and other human activities impact on the environment through discharges to air, water and land. The main influences on air quality within the catchment are the industries situated along the Thames Estuary corridor, and the transport related emissions particularly those close to the main roads (M20, M25, M26 and A2) running through the area. There are no major discharges into the Darent or Cray as domestic sewage from throughout the catchment is treated at Long Reach Works, near Dartford, which discharges into the tidal Thames. There are 63 licensed waste facilities in the Darent catchment with landfill remaining the principal means of disposal for domestic waste arisings.

Future development in the catchment will continue to highlight the contrast between the relatively rural nature of the south of the catchment and the urbanised northern part. In the south, outside the existing urban boundaries, green belt and AONB designations restrict development. In the north the catchment is at the heart of the Thames Gateway where numerous brownfield industrial sites have been designated for major regeneration. Developments already in place include Bluewater regional shopping centre, the nearby Darenth hospital and the Crossways Business Park. Further proposals include the University of Greenwich at Joyce Green and follow on development in the catchment when the second phase of the Channel Tunnel Rail Link proceeds, just outside the LEAP boundary.

The aim of this LEAP is to provide the Environment Agency's framework for a sustainable future of the Darent catchment, an area with important environmental features that are recognised nationally, but which is subject to a wide range of human and natural pressures. This will take account of the need to protect and enhance the countryside to the south of the area whilst ensuring that the major developments in the north of the catchment are carried out in a sensitive way with as little impact on the environment as possible.

5.0. A BETTER ENVIRONMENT THROUGH PARTNERSHIP

5.1. INTRODUCTION

The Agency is well placed to influence many of the activities affecting the environment through the Environment Act 1995 (EA95) and other associated legislation. The Agency must work in partnership with others to ensure that, where appropriate, the actions identified in Section 6 of this document are implemented and the environmental issues addressed.

The Agency cannot achieve these aims alone as it has neither the statutory powers, nor the resources or technical expertise. For this reason it will continue to work in partnership with local authorities and other organisations.

5.2. CURRENT PARTNERSHIPS AND PROJECTS IN THE LEAP AREA

In addition to the general partnership opportunities presented in the Kent Area LEAP there are a variety of current projects in the Darent LEAP area involving partnership between the Agency and different organisations. A selection of these partnerships is summarised below:

5.2.1. Countryside Management Projects

The North West Kent Countryside Project (NWKCP) is a countryside management project which aims to conserve and enhance the rural local environment. The NWKCP, which is led by KCC with funding from a number of local authorities and the Environment Agency, helps to undertake small scale conservation and informal countryside recreation management activities. The NWKCP works closely with landowners to enter land into MAFF's Countryside Stewardship Scheme which makes payment to farmers and land managers to improve the natural beauty and diversity of the countryside. The NWKCP's objectives include:

- Conserving and enhancing river corridors, landscape features and their associated wildlife;
- Increasing the public's knowledge and understanding of the countryside; and
- Assisting with the positive enhancement of the countryside and informal recreation opportunities within the Metropolitan Green Belt and urban fringes.

5.2.2. Kent Air Quality Partnership

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 Kent County Council (KCC) provides secretarial facilities. The air quality model is also used by KCC to assist with planning decisions by evaluating the impact of proposed developments.

5.2.3. Water Companies

The Environment Agency has entered into partnership with two water companies within the Darent catchment, Thames Water and South East Water, to restore environmentally acceptable low flows (EALF) to the river while safeguarding the public water supplies. This is being achieved through

the implementation of the Darent Action Plan 1994-2005. This Plan provides for the relocation of substantial groundwater abstraction capacity outside the catchment, and also provides flow augmentation from bank-side boreholes where necessary. The Plan also promotes efficient water use through demand management and leakage control.

5.2.4 Darent River Preservation Society

The Darent River Preservation Society (DRiPS) represents another partner in the implementation of the Darent Action Plan. For many years, DRiPS has been effective at a communal and political level in advancing the Darent Action Plan 1994-2005 and informally auditing the process.

5.2.5. Fisheries Consultative Group

The Environment Agency works closely with the Kent Fisheries Consultative Association (KFCA) which consists of representatives sitting on the Agency's Regional Fisheries, Ecology, Recreation, Navigation and Conservation Committee (RFERAC) and the Kent Area Environment Group (AEG). The KFCA serves four catchment fisheries groups including one for the Darent.

5.2.6. Waterwatch

Agreement has been reached with the police that the Waterwatch group (similar to Neighbourhood Watch groups) established on the Great Stour will be extended county wide, including all of the Darent catchment falling under the jurisdiction of Kent Police. The respective parties communicate by telephone and in addition post information onto an electronic mailboard to maintain a useful flow of intelligence. The partners also have specific joint arrangements for addressing poaching incidents.

Representatives of organisations wishing to belong to the Waterwatch group should contact the Fisheries section of the Agency in Kent for more information.

5.2.7. Kent Sustainable Business Partnership

The Agency is a partner in the Sustainable Business Partnership project, led by Kent County Council, which seeks to target small and medium businesses in the area. The Kent Sustainable Business Partnership has recently been awarded funding from European ADAPT funds which will enable the project to continue and develop.

5.3. FUTURE PARTNERSHIP PROCESS

Meeting the challenge of achieving sustainable development in the Darent area will require the Agency and partner organisations to develop an appropriate policy framework, together with a high level of public interest and support. This stage of the LEAP process identifies actions developed with consideration of the comments and suggestions of consultees, that can be undertaken in partnership with a range of organisations. The Agency welcomes new partnership opportunities and would be pleased to hear from individuals or organisations with any such proposals.

6.0. ACTIONS FOR THE DARENT

6.1. INTRODUCTION

Implementation of the LEAP is based on delivery of the actions identified as required to address the 18 key environmental issues that are of particular significance to the catchment.

The intended actions are presented with proposed time scales, anticipated costs, Agency lead contact(s) and the identification of potential partners. As far as possible, actions are specific, measurable, agreed, realistic and time-defined. In most cases actions are over and above the statutory responsibilities of the Agency and are not matters that can be addressed by the Agency through its day to day work. As such, the plan represents the non-routine investment by the Agency and others in the catchment.

Where possible, costs have been outlined for the period covered by the plan. This does not necessarily reflect the total cost of the schemes to the Agency and is sometimes an estimate, to be more accurately costed later. A number of the actions will require feasibility studies and an appraisal of options prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be required. The document is produced in good faith recognising current priorities both within the Agency and in other organisations. The implementation of the actions will be subject to, amongst other things, availability of financial and human resources. The letters "MP" appearing in the column headed Agency Cost, denote manpower resources only, with no additional cost to the Agency's annual budgetary provision.

6.2. ENVIRONMENT AGENCY BUSINESS PLANNING PROCESS

It is the Agency's intention to implement all actions, however, activities need to be prioritised in conjunction with the Agency's core duties via the annual Business Planning Cycle. In addition, the Agency is jointly responsible with other identified organisations and individuals for implementing the actions in this plan. A number of the actions rely on external funding and are also heavily dependent on the changing priorities of partnership organisations. The Annual Review process enables the Agency to regularly assess progress and incorporate changing local and national priorities as necessary.

6.3. THE ACTIONS TABLES

Each of the issues identified in the Action Tables that follow is accompanied by a short explanatory text, but please refer to the Environmental Overview for more background information. Many of the issues and actions are inter-related which reflects the need for integrated environmental management. Cross-referencing between issues and actions has been carried out where appropriate.

LEAPs translate the Agency's long term *Environmental Strategy for the Millennium and Beyond* into action on the ground. Each action is marked with one or more of the symbols detailed below, representing which of the nine key themes in the Strategy the action addresses.



Addressing climate change



Improving air quality



Managing our water resources



Enhancing biodiversity



Managing freshwater fisheries



Delivering integrated river-basin management



Conserving the land



Managing waste



Regulating major industries

6.4. RELATIONSHIP BETWEEN THE KENT AREA AND DARENT LEAPS

The Kent Area LEAP is the strategic over-arching Action Plan that deals with issues that are common to at least three catchments in the area. Catchment LEAPs detail issues and actions that are specific to the catchment. There are three basic relationships between issues in the two layers of LEAPs as detailed below:

- A generic issue in the Kent Area LEAP where actions addressing the issue cover activity in the Darent. The issue does not appear again in the Darent LEAP with the exception of Issues 2 and 13 for which text is included to ensure comprehensive coverage of significant issues.
- A generic issue raised in the Kent Area LEAP with particular relevance to the Darent catchment and therefore addressed with specific actions in this catchment LEAP.
- A local issue of relevance to less than three catchment LEAPs and therefore not addressed in the Kent Area LEAP but addressed in the Darent LEAP.

* Please note that a new Issue (Number 6) has been added to those from the Consultation Draft and subsequent issues have been renumbered.*

AREA OF INTEREST	KENT AREA LEAP	DARENT LEAP
FLOOD MANAGEMENT	Issue 1: Standard of flood and coastal defences will not be adequate for predicted effects of climate change	Issue 2: Impact of sea level rise on the effectiveness of flood defences
	Issue 20: Maintenance of existing flood defences	
MANAGING WATER RESOURCES	Issue 2: Sustainable water resources management and the effects of climate change	Issue 1: Increased summer peak water demand arising from more extreme seasonal climate variation
	Issue 4: Deterioration in the balance of water resources	Issue 3: Deterioration in the balance of water resources as a result of development of groundwater for public water supply
	Issue 5: Forecast demand – growth; impact on the overall balance of public supplies	Issue 4: New developments are increasing the pressure on water resources in the Darent catchment
		Issue 9: Impact of changing patterns of water abstraction
IMPROVING AIR QUALITY	Issue 3: Need for increased knowledge of impacts of Agency regulated industrial releases on air quality	Actions in the Kent Area LEAP cover the Darent catchment
ENHANCING BIODIVERSITY	Issue 6: Protection and enhancement of biodiversity	Issue 6: Pressure on riverine biodiversity and how to achieve the Agency's biodiversity objectives
	Issue 8: Protection and enhancement of important wetlands	Actions in the Kent Area LEAP cover the Darent catchment
		Issue 5: The spread of invasive species through the catchment
MANAGING FRESHWATER FISHERIES	Issue 7: Illegal movement of freshwater fish through Kent	Actions in Kent Area LEAP cover the Darent catchment
		Issue 7: Excessive unlicensed fishing due to proximity to major urban areas



CONSERVING THE LAND	Issue 11: Deterioration in the condition of land drainage	Actions in Kent Area LEAP cover the Darent catchment
	Issue 21: Development pressures on environmental resources	Actions in Kent Area LEAP cover the Darent catchment
	Issue 22: Contaminated land to be made suitable for development use	Issue 15: Potential land contamination problems
	Issue 23: Environmental impact of the Channel Tunnel Rail Link (CTRL)	Actions in Kent Area LEAP cover the Darent catchment
WATER QUALITY	Issue 12: Water quality improvements	Actions in Kent Area LEAP cover the Darent catchment
	Issue 13: Improving bathing beaches	Actions in Kent Area LEAP cover the Darent catchment
	Issue 14: Coastal oil pollution	Actions in Kent Area LEAP cover the Darent catchment
	Issue 17: Pollution prevention	Actions in Kent Area LEAP cover the Darent catchment
	Issue 29: Danger of contamination of water for drinking water	Actions in Kent Area LEAP cover the Darent catchment
	Issue 10: Reduction in river baseflow producing a loss of dilution capacity	Actions in Kent Area LEAP cover the Darent catchment
		Issue 13: Impact of creosote pollution and siltation at Broomwood Lake
INTEGRATED RIVER-BASIN MANAGEMENT	Issue 9: Declining flows in Kent area rivers	Actions in Kent Area LEAP cover Darent catchment
	Issue 15: Increased managed access to the water for recreation	Issue 10: Accessibility to water based recreation in the Darent Catchment for all people
	Issue 16: Protection of Archaeological Heritage	Actions in the Kent Area LEAP cover the Darent catchment
	Issue 19: Development pressures and sustainable surface water management	Actions in the Kent Area LEAP cover the Darent catchment
		Issue 8: Loss of water from the catchment
		Issue 11: Management of Dartford Marshes
		Issue 12: Operation of weirs and sluices on the Darent
ENVIRONMENTAL AWARENESS		Issue 14: The need for wider adoption of best practice river management
	Issue 18: Lack of knowledge of significant environmental issues in Kent area	Actions in the Kent Area LEAP cover the Darent catchment
SUSTAINABLE WASTE MANAGEMENT	Issue 24: Sustainable Wastes Management	Actions in the Kent Area LEAP cover the Darent catchment
	Issue 25: Waste management facilities	Actions in the Kent Area LEAP cover the Darent catchment
	Issue 26: Sites claiming exemption from waste management licensing	Actions in the Kent Area LEAP cover the Darent catchment
	Issue 27: Pollution from the metal recycling (scrap) industry	Issue 16: Scrapyards and water quality
	Issue 28: Land application of sewage sludge	Actions in the Kent Area LEAP cover the Darent catchment
	Issue 30: Sustainable management of landfill gas	Actions in the Kent Area LEAP cover the Darent catchment
	Issue 31: Risk of illegal waste disposal (flytipping)	Issue 18: Flytipping
		Issue 17: Trans-frontier Shipments of Waste at Thames Europort

ISSUE 1: INCREASED SUMMER PEAK WATER DEMAND ARISING FROM MORE EXTREME SEASONAL CLIMATE VARIATION

A forecast for South East England, produced by the Climate Change Review Group, suggests an increase in winter rainfall with corresponding greater potential for aquifer replenishment. However, this benefit could be offset by hotter dryer summers, bringing higher peak period demands on the public supply network. The result could therefore be a net decrease in the balance of water resources with drier soils and depleted water table levels.

This effect has been anticipated in the Darent Low Flow Alleviation Scheme (Issue 3) to the extent that this Action Plan includes the facility for augmenting flow at times of severe drought by pumping water into the river from boreholes specially constructed for this purpose. As part of the Darent Low Flow Alleviation Scheme, target flows and levels have been set at key locations. These represent thresholds for the maintenance and protection of the important plant and invertebrate habitats within the river and associated lake areas. These target flows and levels constitute what has been termed the Environmentally Acceptable Flow Regime (EAFR).

If the climate change predictions prove to be substantially correct then, in order to sustain the EAFR, the Agency will need to operate the augmentation boreholes more frequently and for longer periods than envisaged when the scheme was implemented.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Include a procedure for low flow augmentation in the Kent Area Drought Contingency Plan. • (Agency Lead: Water Resources Manager)	Achievement of target flows under all but the most severe drought conditions.	Protection of river habitats in accordance with the EAFR.	2000-2004	Water companies.	MP	 

ISSUE 2: IMPACT OF SEA LEVEL RISE ON THE EFFECTIVENESS OF FLOOD DEFENCES

Current climate change models are indicating a rise in sea level of 4mm per year. In addition to this, a relative sea level rise due to the geological tilting of the British Isles means that the total sea level rise in the South East is 6mm per year. The Thames floodwalls are in mid life and their present maintenance needs and operational effectiveness will require reassessment in view of this sea level rise.

The Agency's current assessment programme is:

- to carry out an asset survey to determine conditions of the Thames Tidal Flood Defences (TTFD) that will provide data for the Flood Defence Management System, which determines the justification and priority of maintenance and improvement works; and
- the TTFD strategy which has been commissioned to determine the most effective way of managing the flood defences over 50 years.

This issue has been addressed across the Kent area under Issues 1 and 20 of the Kent Area LEAP, covering specific actions in the Darent Catchment.


ISSUE 3: DETERIORATION IN THE BALANCE OF WATER RESOURCES AS A RESULT OF DEVELOPMENT OF GROUNDWATER FOR PUBLIC WATER SUPPLY

Prior to the implementation of the Darent Low Flow Alleviation scheme, abstraction for the public supply accounted for more than two thirds of the average annual effective rainfall, most of which takes place during the winter months. This abstraction for the public supply was from boreholes in the Chalk and the Lower Greensand aquifers underlying the catchment. The result was a progressive depletion in water table levels with a corresponding reduction in the discharge of springs that would normally sustain the flow of the river during the summer and autumn. Average flows in the Darent fell to little more than a third of what would be considered normal for a river catchment of this size in its natural state. Indeed, during the long drought of 1989-92, flows actually ceased altogether over long reaches between Eynsford and Dartford, as on several previous occasions during the past 30 years.

The cumulative impact of this general reduction in river baseflow has shown itself in a loss of species diversity to the extent that the Darent no longer displays the thriving plant and invertebrate communities that characterise a healthy chalk stream habitat. In turn, this has reduced the amenity value of a popular local resort. It was for these reasons that the Darent was given high priority under the Agency's National Low Flow Alleviation Programme.

This year sees the completion of Phase I of the Darent Action Plan, which commenced in 1994. Phase I has achieved about half the target flows necessary to secure an environmentally acceptable flow regime (EAFR). This has been achieved in two ways. The quantities of groundwater abstracted by Thames Water from the Greensand and Chalk aquifers underlying the river catchment have been reduced while flow augmentation boreholes have also been constructed, sited near the river and operated as "artificial springs" to sustain flows at times of exceptionally low water table levels.



Work is still necessary to ensure that, other than at times of severe drought, there will always be sufficient flow in the river to support a healthy stable "chalk stream" habitat with its characteristic diversity of plant and invertebrate species. This will be the objective of Phase II of the Darent Action Plan, under which it is hoped will see the return of a fully sustainable brown trout population. The most likely course of action, which has been given the full support of Thames Water and South East Water, will involve further substantial reductions in the quantities of water pumped from boreholes at sensitive locations in the valley. Losses in public supply capacity incurred by the companies will need to be made up from new sources outside the catchment. One possibility now under investigation would involve the construction of new chalk boreholes in the vicinity of Swanscombe Quarry where large volumes are currently being pumped to waste to prevent flooding of the excavation works. This proposal has the support of the Department of the Environment Transport and Regions (DETR), being a wholly sustainable option with the additional benefit of materially reducing wastage of the area's water resources.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Implement Phase II of the Darent Action Plan, which includes further reductions in quantities of water abstracted for public supply from boreholes in the underlying Chalk and Greensand aquifers. • (Agency Lead: Water Resources Manager)	Achievement of target flows under "Design Drought" conditions.	Restoration of a sustainable chalk stream habitat.	2000-2004	Water companies, BCI.	£10k	

ISSUE 4: NEW DEVELOPMENTS ARE INCREASING THE PRESSURE ON WATER RESOURCES IN THE DARENT CATCHMENT

Recent and planned developments in North West Kent are increasing water demand in the Dartford and Gravesham Borough areas, although this is partly offset by a local decline in consumption for industrial purposes. Such development includes the Bluewater regional shopping centre, the Crossways Business Park and a new hospital and university. There are proposals for an International Railway Station at Ebbsfleet, redevelopment of the Blue Circle Industries (BCI) chalk quarries at Swanscombe and the construction of approximately 10,000 housing units.

The Darent Action Plan aims to reduce the impact of groundwater abstraction on the low flow regime of the river. As explained under Issue 3, any resulting loss of public supply capacity will need to be made good from alternative sources elsewhere, most likely within the area of Swanscombe chalk quarry. Work on assessment of the water resources of the Swanscombe area is now in progress and this information will ensure that future groundwater abstraction is sustainable and presents no threat to the environment. Special attention will therefore need to be given to the protection of designated wetland areas.

Action	Targets	Benefits	Timescale	Partners	Agency/Cost	Agency/Theme
1. Maintain the general presumption against further development of the catchment's groundwater resources. Assess the potential of the neighbouring Swanscombe Chalk block where groundwater is currently pumped to waste and formulate a strategy for further controlled development. • (Agency Lead: Water Resources Manager)	Development of new viable public supply sources in the Swanscombe Chalk block.	Redevelopment of resources currently discharged to waste. Successful completion of the Darent Low Flow Alleviation Scheme. Creation of a secure basis for the sustainable management of water resources.	2000-2004	LAs, water companies, BCI, EN, DETR.	£50k	 

ISSUE 5: THE SPREAD OF INVASIVE SPECIES THROUGH THE CATCHMENT

The native white clawed crayfish (*Austropotamobius pallipes*) was once common, more than thirty years ago, but the population collapsed due to the fungal *crayfish plague* which was introduced into Britain with signal crayfish and Turkish swamp crayfish by commercial crayfish farmers. The white clawed crayfish is now subject to EC Directive protection and the only residual stock of the species in the catchment is to be found at Dunton Green, Sevenoaks. Consideration should be given to the needs of white clawed crayfish when constructing in-stream habitat for fisheries improvement, together with any other changes that may affect the river habitat.




Chinese mitten crabs (*Eriocheir sinensis*) have been unwittingly imported to estuarine and freshwaters in the South East of England, having been discharged in ships ballast water to the Thames estuary. The crabs have spread into the lower reaches of the Rivers Cray & Darent, including some of the connected lakes. These crabs are aggressive and may destroy the native white clawed crayfish in the catchment. They may also cause a problem for the flood defences due to their burrowing habit undermining the riverbanks.



The spread of invasive species and diseases present problems. In particular:

- Chinese mitten crabs may compromise flood defences, increase predation of the native white-clawed crayfish and may cause damage to riverbanks;
- the introduction of *crayfish plague* threatens the mass mortality of the white-clawed crayfish. This crayfish plague is a fungal disease carried via the non-native signal crayfish or from spores transferred on wet footwear or nets;
- the spread of alien plants, particularly Japanese knotweed, Himalayan balsam and giant hogweed; and
- the introduction of exotic fish species and large carp to fishing lakes which may result in the introduction of fish diseases, and the possibility that these fish will escape to the rivers and interfere with the natural balance of species.

Japanese knotweed, giant hogweed & Canadian balsam were unwittingly imported to estuarine and freshwaters in ship's ballast and have invaded and are now widespread. The Environment Agency is charged with monitoring their expansion & encouraging others to control them. Giant hogweed has a particularly toxic sap that can cause burns and blisters to the unwary.

Successful resolution of this issue will require a co-ordinated strategic approach to monitor and where feasible, eradicate invasive species. The full support of riparian owners will be key to its success and the will require a long time scale.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Assist in the investigation and development of a strategy to eradicate invasive species, where consistent with national policy. • (Agency Lead: Team Leader Conservation and Recreation)	Production of strategy to reduce the presence of invasive species throughout the catchment. Develop, implement and review an eradication strategy by 03/04.	Protects and conserves the native biodiversity. Constrains potential worsening of the situation, i.e. additional introductions. Improved understanding of species distribution, allowing correct management decisions to be made.	2000-2004	LAs, KECA, DRIPS, riparian owners, NWKCP, Groundwork.	£8k	 
2. Adopt a protocol to reduce the risk of crayfish plague being introduced with stocked fish into waters containing native crayfish. • (Agency Lead: Fisheries Scientist)	No further losses of native crayfish due to plague. No new introduction of plague.	Protection of native crayfish stocks and maintenance of biodiversity.	2000-2004	Fish farms, angling clubs, syndicates.	£0.5k & MP	

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
3. Where possible, provide hard copy GIS maps of species distribution. • (Agency Lead: Conservation and Recreation Officer)	All species fully mapped.	Meets customer demand for quality information	2002-2003	NWKCP, LA's, Landowners.	To be determined.	 

ISSUE 6: PRESSURE ON RIVERINE BIODIVERSITY AND HOW TO ACHIEVE THE AGENCY'S BIODIVERSITY OBJECTIVES

*Please note that this issue is a new issue and as such did not appear in the Consultation Draft. Subsequent actions have been renumbered accordingly.






Biodiversity is the word now commonly used to describe the variety of life on earth. In the UK over 100 species of wildlife have been lost this century. The need to tackle the global decline in biodiversity was recognised in 1992 with the signing of the Biodiversity Convention by over 150 world leaders. This requires the development of national strategies, plans or programmes for the conservation and sustainable use of biological diversity. In the UK, Biodiversity planning is leading to the prioritisation of habitats and species for action. 'Biodiversity: The UK Steering Group Report' was published in 1995, and a growing number of county plans, including the Kent Biodiversity Action Plan (BAP), were produced.

The Environment Agency has a general commitment to conserve wildlife associated with the water environment and is taking part in the Biodiversity process in the following ways:

- The Agency is the UK contact for a range of water-related species, several of which occur in the Darent catchment. As the UK contact, our responsibilities include stimulating action to achieve targets, monitoring results and reporting progress to the national group; and
- The Agency is joint lead partner for a range of species, responsible for preparing detailed work plans, directing resources and overseeing plan implementation.


Nationally, the Agency has decided to give priority to implementing UK actions, therefore any local initiatives must be seen in this context. Several of the actions detailed in the Kent Area LEAP are relevant to the Darent LEAP but they are not repeated as actions here. It is, however, worth noting that in the Kent Area LEAP we outline how, in discussion with others, we are setting catchment specific targets for key habitats and species, implementing water level management plans and meeting additional responsibilities placed upon us under the European Habitats Directive. The Agency has been supporting the North West Kent Countryside Project since its inception and sees this as a key mechanism for delivering actions on the ground. A significant commitment to supporting such countryside projects is given in the Kent Area LEAP.

Many actions under other issues in this LEAP will help towards reversing the decline in biodiversity. In this LEAP we highlight local actions where we see most need to devote our conservation efforts over the next few years, rather than repeat targets and actions from the Kent BAP. For example, the majority of the Darent and its tributaries within the LEAP area fall within the definition of a chalk river, as defined by the UK BAP Steering Group Report 1995, containing the characteristic biodiversity such as the native crayfish and water crowfoot. In addition to the Darent Alleviation of Low Flow (ALF) scheme presently underway (Issue 3) and a number of issues raised under the theme of integrated river-basin management (in particular Issue 14), the Conservation Section wishes to initiate further specific action, as detailed below. With growing knowledge and changing circumstances it is likely further actions will be added in later revisions of this LEAP.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Enhance water crowfoot growth. • (Agency Lead: Conservation and Recreation Officer)	Extend the current distribution of the plant within the river. Support current investigations by Fisheries Section. Identify sites by 00/01.	Key chalk river indicator species. Enhances biodiversity and sustainable river management.	2000-2004	Landowners, NWKCP, angling clubs.	£2k	
2. Continue to monitor the native crayfish populations in the River Darent and encourage protection of key stretches as Sites of Nature Conservation Interest (SNCI) (Wildlife Sites). • (Agency Lead: Conservation and Recreation Officer)	Report on distribution of crayfish populations and produce survey prior to designation of key sites by 03/04.	Meets UK and County BAP actions and targets. Improved knowledge of distribution. Creates protection afforded to Biodiversity species.	2000-2004	NWKCP, landowners, KWT, LAs, DRiPS.	£5k	
3. Implement a series of partnership in-river crayfish habitat enhancements in appropriate locations. • (Agency Lead: Conservation and Recreation Officer)	Initiate at least two enhancement schemes by 01/02. Continued presence of crayfish in the catchment.	Meets UK and County BAP actions and targets. Successful partnerships.	2000-2002	NWKCP, landowners, LAs, KWT, DRiPS.	£5k	
4. In consultation with the local community, manage the middle reaches of the River Darent and its tributaries as chalk rivers to maintain and enhance their characteristic flora and fauna, including brown trout populations. • (Agency Lead: Conservation and Recreation Officer & Fisheries Scientist)	Review the need and potential for restoration by 01/02. Undertake regular surveys of river fish populations, including brown trout.	Meets UK BAP actions and targets. Ensures the recognition and appropriate management of the chalk river habitat.	2000-2004	NWKCP, landowners, farmers, angling clubs, DRiPS.	£4k	 

ISSUE 7: EXCESSIVE UNLICENSED FISHING DUE TO PROXIMITY TO MAJOR URBAN AREAS


A large proportion of the anglers who fish in Kentish waters live in suburban London. With the short travel time and resultant low cost, the Darent and Cray valleys are popular fishing areas and large numbers of anglers fish here. As a result, the occurrence of unlicensed anglers is a particular problem in the Darent catchment, while also applying to some extent throughout the Kent area.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Make full use of new systems to improve licence checking and provide better information on evasion rates. • (Agency Lead: Team Leader Fisheries)	Keep evasion level below 5%.	Increased income to benefit fisheries and enable habitat and fishery enhancements.	2000-2004	Angling clubs, police.	MP	

ISSUE 8: LOSS OF WATER FROM THE CATCHMENT

Almost all the wastewater generated within the Darent catchment is sewered outside the area for treatment and discharge. Consequently, virtually none of the groundwater abstracted from the catchment is returned to it to benefit the water balance. In the early 1990s, the investigations that led to the formulation of the Darent Action Plan considered a number of options to restore low flows, including the local treatment and discharge of waste water. However this idea was discounted on economic grounds and because of the relatively modest volume of treated water that would become available.

Large trunk sewers run down the Darent and Cray valleys, often parallel and close to the rivers. There is a possibility that the older trenches, and indeed the sewers themselves, inadvertently drain groundwater from the vicinity of the rivers, thereby inducing losses from the rivers. It would be necessary to prove that any mitigating work will significantly improve flow in the river before improvements could be considered.


Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Investigate and seek to minimise the drainage effects of trunk sewers, according to cost benefit analysis. • (Agency Lead: Tactical Planning Officer)	Increased flows in the River Darent.	Provides a sustainable increase in river flow.	2000-2004	Thames Water Utilities.	MP	

ISSUE 9: IMPACT OF CHANGING PATTERNS OF WATER ABSTRACTION

Background growth in demand for public water supply is intensified locally by new and proposed infrastructure developments in the Thames Estuary area, although most of these are located immediately outside the Darent and Cray catchments.

This upward trend in public water supply level has been offset by the decline in industrial abstraction, notably in the lower Cray valley at Crayford and Bexley. This decline may also have contributed to the localised instances of groundwater flooding reported in recent years. As the Darent Action Plan is implemented in the Darent valley there are also major reductions in abstraction in progress. In the upper parts of the Cray valley at Orpington and Sidcup, the converse situation exists. The upward trend has been steepened with temporarily increased groundwater abstraction to partially offset the planned losses of supply from the Darent.

The issue therefore centres on maximising the benefits of decreased abstractions in the Darent valley and minimising the disbenefits of increased abstractions in the Upper Cray and Thames estuary area. The Agency's National programme of Catchment Abstraction Management Strategies (CAMS) can be used to address this issue. CAMS are local, medium-term strategies for achieving the sustainable management of water resources within a catchment or a group of catchments. CAMS will provide the opportunity for those with an interest in water management to contribute to those strategies relevant to their interests.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Assess risks to affected areas and formulate a water resource management plan as part of the new Catchment Abstraction Management Strategy (CAMS) (3 year study). • (Agency Lead: Water Resources Manager)	Creation of clear guidelines for control of water table levels and management of the groundwater resource.	Securing the proper use of water resources.	2001-2004	LAs, industry, EN, water companies.	£100k	

ISSUE 10: ACCESSIBILITY TO WATER BASED RECREATION IN THE DARENT CATCHMENT FOR ALL PEOPLE

Within the catchment, there are a large number of formal and informal sites adjacent to water which provide recreational opportunities, some of which are open to the general public and others restricted to members. Examples include:




- Darent Valley Path
- Cray Valley Path
- Lullingstone Visitor Centre
- Lullingstone Roman Villa

- Chipstead Sailing Club
- Eynsford Ford, Farningham Bridge & Franks Lane
- Ruxley Lake
- Sutton at Hone Lakes
- Thames Estuary and Dartford Creek Flood Walls

Due to the large urban population nearby, many of these sites come under extreme pressure from large numbers of vehicles creating traffic and parking problems. Adverse impacts can include illegal entry to private facilities, in particular to fishing lakes, inappropriate uses such as horseriding, mountain biking or driving vehicles in the river and demands for additional uses of flood defences which may be incompatible with their maintenance and operation. Access needs to be managed to meet the demand for recreation in a way that does not damage these habitats and the environment in general.

The Environment Agency is keen to encourage the improved management of and accessibility to these recreational facilities, where applicable, while investigating opportunities for increased recreational sites within the Darent catchment, for example, increased facilities for canoeists.

The Agency encourages the development of access for fishing. There is a need for quality fishing that is accessible to people living in the area with varying degrees of mobility, especially in the urbanised London fringe within the catchment. Whilst opportunities for fishing appear to be extensive in both the river and adjacent gravel pits, most of the waters are controlled by angling associations. There is a particular need to open up access for casual anglers and encourage the development of facilities for physically disabled people.



Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Encourage appropriate increased recreational use of flood defences where they do not adversely affect the operational and maintenance activities while seeking to restrict inappropriate use. • (Agency Lead: Team Leader FD Operations and Enforcement & Team Leader Conservation and Recreation)	Monitor feedback on consultation with local groups and authorities. Agreements reached for new/increased recreational facilities where appropriate.	The increased recreational value of the water asset.	2000-2004	Local groups, LAs, BCU, landowners.	£5k	
2. Investigate the development of promontories in the deepest gravel pit lakes to increase the extent of recreational fishing and improve marginal productivity and biodiversity. • (Agency Lead: Fisheries Scientist)	Increased recreational opportunities.	Improved productivity of flora and fauna. More shelter for wildlife from the elements. Increases the potential for successful fish spawning. Increased opportunities for fishing.	2001-2004	Lake owners, EN, angling clubs.	£5k	 







ISSUE 11: MANAGEMENT OF DARTFORD MARSHES

There are extensive proposals for development in the catchment, particularly on the Thames Marshes. Such development will have implications for flood plain protection, surface water run-off, pollution prevention and conservation habitat protection. The drainage of the marshes relies on gravity which may not continue to be sufficient as sea levels rise or as further land is developed. The situation may be further complicated by developers using land raising to provide flood protection.

For conservation aspects in particular, Dartford Marshes are similar in character to Crayford Marshes on the western side of Dartford Creek and Rainham Marshes to the north of the Thames. These marshes are under the jurisdictions of the Agency's Thames and Anglian Regions respectively. It would be beneficial to those species requiring large ranges and to avoid fragmenting the habitat if these marshes could be managed together with research and monitoring work (e.g. surveys) undertaken in partnership with other Agency Regions. This would provide an important opportunity to share information and experience of managing the marshes while raising the profile of the area for its wetland habitat.

"Managing the Marshes" is a countryside project based at Dartford Marshes, which is supported by a partnership including Dartford Borough Council, the University of Greenwich, Groundwork Kent-Thameside and Glaxo Wellcome. To date, the Agency has provided collaborative funding specifically for the project to produce a Water Level Management Plan (WLMP) for the site. Water Level Management Plans (WLMP) are one means by which the water level requirements for a range of activities in a particular area can be balanced and integrated, particularly for Sites of Special Scientific Interest (SSSI) or other areas of high ecological or landscape importance. Activities covered include agriculture, flood defence and conservation. There are many Agency interests on the marshes, including those relating to flood defence and various biodiversity habitats and species. Managing the Marshes is therefore an important project as it is ideally placed to deliver value for money action on the ground.



Action	Targets	Benefits	Timescale	Partners	Agency/Cost	Agency/Theme
1. Provide financial support to the Managing the Marshes Project and technical input for production and implementation of management plans. • (Agency Lead: Team Leader FD Operations and Enforcement & Conservation and Recreation Officer)	Provide appropriate level of contribution towards core funding of Managing the marshes project, subject to availability of resources. Participate in Managing the Marshes Project Steering Group. Develop a strategy to overcome objections to the WLMP.	Delivery of a site management plan, including the WLMP, with full inclusion of Agency interests. Maximises the value of Dartford Marshes as a habitat for natural life, whilst maintaining the value to landowners. Maximises recreation and education potential of the site.	2000-2004	Managing the Marshes partnership, landowners, EN, KWT.	£25k	 

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
2. Work with partners and other stakeholders to safeguard the conservation interests of the Marshes. • (Agency Lead: Conservation and Recreation Officer)	Inclusion of conservation measures in Local Plan. Liase with EN regarding potential SSSI notification of the site.	Protection of conservation interest, including important water vole populations.	2000-2004	LA, EN, KWT	£2.5k	 
3. Work with developers and Local Authority to agree sensitive works and seek opportunities for habitat creation including open water, reedbed and grazing marsh. • (Agency Lead: Conservation and Recreation Officer)	Fully participate in discussions with developers and the Local Authority.	Minimise negative impacts and maximise conservation gains from development proposals.	2000-2004	LA, developers, landowners.	£2.5k	 
4. Assist in the implementation of a water vole survey for the management area. Consider fully the information with respect to future habitat and water level management. • (Agency Lead: Conservation and Recreation Officer)	Increase in indicator species and key biodiversity species. Consensus reached with respect to the marshes management. Baseline survey completed by 01/02.	Successful partnership approach to optimise the marshes biodiversity potential. Provides a coherent strategy for future management. Would assist in the protection of the marshes from development pressures.	2000-2004	EN, LAs, Glaxo Wellcome, landowners, NWKCP, Groundwork.	£10k	 

ISSUE 12: OPERATION OF WEIRS AND SLUICES ON THE DARENT

There is currently no clear management strategy for the operation, maintenance or replacement of the large number of structures that affect flow control in the catchment, including sluices and weirs. Many of the structures need major repairs or maintenance, which is often the responsibility of the riparian owner. Whilst the Environment Agency has little direct responsibility, the operation of these sluices often has a significant effect on flood defence.

In addition to the operational impact, some of the weirs act as significant barriers to migrations of fish or other aquatic species, to the detriment of biodiversity.


Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Identify owners of private sluices on Main River and ordinary watercourses and provide education and advice in relation to operational rights and responsibilities. Encourage private sluice owners to become customers of the Flood Warning Service. • (Agency Lead: Team Leader FD Operations and Enforcement & Fisheries Scientist)	A reduction in calls relating to inconsiderate operation of sluices. Achieve an 80% take up of Flood Warning Service by sluice operators on Main River by 2005.	Reduction in incidents affecting river users and putting stresses on the environment. Increased operational effectiveness of water control structures preventing excessive deviations in water level and minimising the risk of flooding to land and property.	2000-2002	Landowners, LAs.	£5k	
2. Reconvene meetings of private sluice owners and other interested parties, chaired by the Agency, as a forum to develop communication between operators and increase awareness of needs of river users. • (Agency Lead: Team Leader FD Operations and Enforcement)	Establish a culture of co-operation through annual meetings led by the Agency.	Reductions in conflict and the inappropriate operation of water control structures.	2000-2004	Landowners, LAs, fishing clubs, ramblers, NABO, BCU.	£2k	

ISSUE 13: IMPACT OF CONTAMINANT POLLUTION AND SILTATION AT BROOMWOOD LAKE

Broomwood Lake acts as an on-line balancing pond to absorb surface water run-off and to minimise flooding downstream. The lake is progressively silting up over a bed polluted by creosote as a result of a spillage in 1977 and the lake is losing its effectiveness for flood storage due to the reduced volume caused by this siltation.

An example of an important habitat, a swampy alder/willow carr, is developing naturally at the head of the lake. The silt has blanketed the creosote, which is decaying very slowly, and dredging the lake to restore its original flood defence purpose could release pollutants downstream.





This pollution at Broomwood Lake has previously been studied extensively and these studies have concluded that at the present time, no remedial action should be taken. However, should dredging become necessary in the future, a technique will need to be used which minimises the potential dispersion.





Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Encourage appropriate management of lake for fishing so as not to precipitate release of contaminants. • (Agency Lead: Fisheries Scientist)	Minimal environmental disturbance. Maintain appropriate recreational fishery.	Continues use of recreational resource.	2000-2004	Landowner, angling club, LAs.	MP	

ISSUE 14: THE NEED FOR WIDER ADOPTION OF BEST PRACTICE RIVER MANAGEMENT

It is important that flood defence bankside maintenance work is carried out in a sensitive manner in order to preserve riparian vegetation that forms important aquatic environments. In addition to its importance as a habitat, this vegetation acts as a buffer strip giving added protection to the river against the adverse effects of diffuse pollution coming from the surrounding environment.

A demonstration length is in place at Westminster Mill, Horton Kirby, where best practice river management of the bankside is carried out by the Agency. This work is carried out in partnership with local landowners to determine maintenance techniques that will have minimal impact on sensitive habitats. This example will be adopted more widely.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Extend field trials for "best practice" to include St John's Loop and the River Darent bordering Dartford Angling Club's lakes at Sutton at Hone, with a view to establishing this as a demonstration length. • (Agency Lead: Team Leader FD Operations and Enforcement & Conservation and Recreation Officer)	Reduction of impact by operational activity on natural habitat without increasing the effect of flooding.	Increased value of conservation asset.	2000-2004	Landowners, angling clubs, NWKCP.	£8k	 
2. Extend field trials for "best practice" to include National Trust property at St John's Jerusalem on the River Darent, with a view to establishing this as a demonstration length. • (Agency Lead: Team Leader FD Operations and Enforcement & Conservation and Recreation Officer)	Reduction of impact by operational activity on natural habitat without increasing the effect of flooding.	Increased value of conservation asset.	2001-2004	Landowners, angling clubs, NWKCP.	£1.5k	 

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
3. Investigate additional demonstration reaches where natural river processes are allowed to prevail to the benefit of biodiversity. • (Agency Lead: Conservation and Recreation Officer, Fisheries Scientist & Team Leader FD Operations and Enforcement)	Establish 1 additional reach of at least 0.5km.	Sustainable river management. Enhances natural river processes. Meets UK and county BAP targets.	2000-2004	Landowners, NWKCP, angling clubs.	£2k	 
4. Implement a programme of pollarding through the Middle and Upper Darent. • (Agency Lead: Team Leader FD Operations and Enforcement)	Establish pollarding programme on relevant river stretches.	Materials resulting from pollarding can be used to construct habitat improvements. Improved tree management. Increased longevity of trees.	2000-2004	Landowners, NWKCP.	£80k	 

ISSUE 15: POTENTIAL LAND CONTAMINATION PROBLEMS

The northern part of the catchment in particular has a significant legacy of old industrial use, as in other parts of the Kent Area. Demands from development can result in the disturbance of immobilised pockets of land contamination with possible pollution risks to human health, groundwater and to surface water ecology and the built environment.


Actions for addressing this issue have been dealt with on an Area-wide basis in Issue 22 of the Kent Area LEAP, particularly concerning the implementation of the Contaminated Land Regulations which came into force in England on 1 April 2000.

ISSUE 16: SCRAPYARDS AND WATER QUALITY

In Kent approximately 200 sites have been inspected as part of a National Metal Recycling Project for Scrap. There are 29 registered exemption sites and 3 licensed sites in the Darent Catchment.

Scrapyards have the potential to affect the quality of groundwater, upon which the catchment is particularly reliant for its water supplies. It is also important to maintain the high quality of the water in the rivers to maintain their conservation and fisheries value.



The full effect of scrapyards on surface and groundwater in the catchment is currently unknown, but the sites will need to have appropriate environmental control to prevent pollution, harm or serious detriment to local amenities. This may be achieved through compliance with the regime of waste management licensing.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. All registered scrapyards to be visited to nationally agreed Agency service level. Sites to meet permit requirements. • (Agency Lead: Team Leader Environment Protection)	Compliance with Waste management Licence Regulations, 1994. No pollution incidents at the site.	Improved or maintained water quality. Minimal environmental harm. Strong enforcement against potential illegal sites providing even regulation.	2000-2004	LAs, Police.	MP	

ISSUE 17: TRANS-FRONTIER SHIPMENTS OF WASTE (TFS) THROUGH THAMES EUROPORT

Thames Europort is a known entry and exit route for the United Kingdom to and from Europe and the rest of the world for Trans-Frontier Shipments of Waste (TFS). The majority of the shipments of waste passing through this port are Green Listed wastes, however the exact volume and composition of this waste is unknown, although the actual volume is considered to be small, consisting mainly of scrap metal. Green listed waste imports will be destined for recovery facilities while waste exports will originate from certain waste producers.


The inspection and monitoring of waste producers and recovery sites within the Kent area will provide a good initial indication of the scale of green list waste shipments. Such a programme of inspection and monitoring of waste producers and recoverers will enable the inspection of paperwork and clarification of the suitability of the waste composition for inclusion on the Green List (i.e. clean and uncontaminated), thereby ensuring compliance with the Transfrontier Shipment of Waste Regulations, 1994.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Devise programme of site inspections for waste producer and recovery facilities to determine green list waste volume arisings. • (Agency Lead: Team Leader Scientific Support & Environment Protection Manager)	Programme of and procedure for site inspections produced and agreed by Agency.	Availability of programme and procedure for waste producer and recovery site inspections.	2000-2001		£2k	
2. Implement inspection programme of waste producer and recovery facilities. • (Agency Lead: Team Leader Scientific Support & Team Leader Environment Protection)	Inspect relevant facilities in line with programme and inspection procedures.	Ensures compliance with relevant legislation. Avoids environmental harm. Increases information on waste composition and scale of issue.	2000-2003	LA's, Police, operators.	£13k	

ISSUE 18: FLYTIPPING

There is subjective evidence, including observations by Agency staff, of extensive flytipping close to the urban fringe. This ranges from commercial waste being illegally diverted from licensed landfill sites to private individuals failing to use civic amenity sites. There have been concerns that this latter problem may be exacerbated by the residence-only requirements introduced at civic amenity sites along the Kent / London Borough boundary and height barriers introduced at some sites to stop commercial vehicle access, which can restrict the disposal of *bona fide* household waste.

In areas where flytipping continues to be a major problem the Agency will take evidence if possible and look to take formal action where appropriate. The Agency has no direct, statutory duty to take action on flytipping, unless it has the potential to pollute, but within its aim of protecting and enhancing the environment, encourages a joint response with Local Authorities.

Action	Targets	Benefits	Timescale	Partners	Agency Cost	Agency Theme
1. Environment Protection staff to follow agreed service level for attendance and action of environmental incidents. Promote awareness of and compliance with flytipping protocol amongst Local Authorities. • (Agency Lead: Team Leader Environment Protection)	Reduction in reported events.	Minimal environmental harm.	2000-2004	LAs.	MP	

7.0. FUTURE REVIEW AND MONITORING

Regular monitoring and updating of the Plan are integral parts of the LEAP process.

The Agency is jointly responsible with other identified organisations and individuals for implementing the actions in this plan. The Agency will monitor implementation of the LEAP and report on progress in a published Annual Review, which will coincide with the Business Planning Cycle.

The Annual Review will be disseminated to all the key partners and other interested parties and will identify any additional actions needed to maintain progress in light of any changes in the LEAP Area and also whether any actions need removing or amending where they are no longer appropriate.

The Annual Review will take the form of a short progress report and will:

- ◆ examine the need to update the LEAP in the light of changes in the Plan area;
- ◆ compare actual progress with planned progress and explain the reason for any changes to the content or timing of individual actions;
- ◆ report on other matters including any legislative and classification scheme changes affecting the LEAP; and
- ◆ roll forward the detailed actions.

After five years, 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.

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 Appendix 1 of 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 (in certain specified areas)

APPENDIX 2: INDIVIDUALS/ORGANISATIONS WHO RESPONDED TO THE CONSULTATION DRAFT

Alexander, Mr J R	Council for the Protection of Rural England (CPRE),
Barnett, Mr A P	Sevenoaks District Committee
Brown, Mr D W	Dartford Borough Council, Environment and Leisure
Brunwin, Mr D	Directorate
Carson, Mr R	Dartford Borough Council, Planning and
Dunn, Mr M	Development Directorate
Eames, F G	Dartford Friends of the Earth
Gadsdon, K	Dartford LA21 Biodiversity Group
Gronow, Mr C	Darent River Preservation Society (DRiPS)
Hill, Dr R B	English Nature
Mansell-Moulin, Mr M	Farningham Parish Council
Millar, E	Glaxo Wellcome
Nash, Mr W M R	Groundwork Kent Thames-side
Priestly, Mrs S	Kent County Council
Northover, Mr P	Kent Wildlife Trust
Street, Dr E	Kent Fisheries Consultative Association, Darent &
Tilley, Mr V	Cray Catchment Consultative Association
Waller, Mr A S	Ministry of Agriculture, Fisheries and Food (2
Waller, Mr D M	responses)
Williams, Mr A L	North West Kent Countryside Project
Ash Cum Ridley Parish Council	Otford Parish Council
Bexley Council, Directorate of Environmental	Riverhead Parish Council
Services	RSPB
Bexley Council, LA21 Co-ordinator	Sevenoaks District Council
Bexley LA21 Natural Environment Focus Group	Southern Water
British Canoe Union (National Office)	Sport England
British Canoe Union (London and South East	Thames Water
Region)	The Hawk and Owl Trust
Chevening Parish Council	The Inland Waterways Association
Clean Rivers Trust	The London Green Belt Council
CPRE Kent	The Woodlands Farm Trust
	Tonbridge & Malling Borough Council

APPENDIX 3: GLOSSARY

Abstraction

Removal of water from surface water or groundwater.

Abstraction Licence

Licence issued by the Agency under the Water Resources Act 1991 to permit water to be abstracted.

Aquifer

A layer of underground porous rock that contains water and allows water to flow through it

Authorisation

A legal licence issued by the Agency under the EPA 90 for industrial processes that use or produce potentially polluting substances in significant amounts.

Biodiversity

The variety of plant and animal life

Catchment

The total area of land which contributes surface water to a specified watercourse or water body.

Consent to discharge

A licence granted by the Agency to discharge effluent of specified quality and volume

Effective rainfall

Rain remaining as runoff after all losses by evaporation, interception and infiltration have been allowed for.

Floodplain

Land adjacent to a watercourse over which water flows or would flow but for flood defences, in times of flood.

Flytipping

The unregulated and, hence, illegal, dumping of waste.

Groundwater

Water contained in underground rocks (aquifers).

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.

Main River

All watercourses are designated as either "main river" (defined in maps held by the Environment Agency and MAFF) or ordinary watercourse ("non-main river"). The Agency has permissive powers to carry out works to protect land and property from flooding by improving the drainage of main rivers only, under the Water Resources Act 1991.

Potable water

Water of suitable quality for drinking.

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 EN because it is particularly important, on account of its nature conservation value under the Wildlife and Countryside Act 1981 as amended.

Special Area for Conservation

Internationally important nature conservation site designated under the EEC Habitats Directive.

Special Protection Areas

Internationally important nature conservation sites designated under the EEC Wild Birds Directive. All SPAs are also SSSIs.

Sustainable development

'Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs' (from World Commission on Environment & Development, 1987. Our Common Future - The Brundtland Report).

APPENDIX 4: ABBREVIATIONS

AEG	Area Environment Group
ALF	Alleviation of Low Flow
AMP	Asset Management Plan
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
BCI	Blue Circle Industries
BCU	British Canoe Union
CAMS	Catchment Abstraction Management Strategy
CTRL	Channel Tunnel Rail Link
DETR	Department of the Environment, Transport and the Regions
DRiPS	Darent River Preservation Society
EA 95	Environment Act 1995
EAFR	Environmentally Acceptable Flow Regime
EN	English Nature
EPA 90	Environmental Protection Act 1990
FER	The Agency's Fisheries, Ecology and Recreation function
FWAG	Farming & Wildlife Advisory Group
GIS	Geographic Information System
HMIP	Her Majesty's Inspectorate of Pollution
IDB	Internal Drainage Boards
KCC	Kent County Council
KFCA	Kent Fisheries Consultative Association
KWT	Kent Wildlife Trust
LA	Local Authority
LEAP	Local Environment Agency Plan
MAFF	Ministry of Agriculture, Fisheries and Food
MOU	Memorandum of Understanding
MRF	Minimum Residual Flows
MP	Manpower
NABO	National Association of Boat Owners
NFU	National Farmers Union
NRA	National Rivers Authority (predecessor body to the Environment Agency)
NWKCP	North West Kent Countryside Project
RE	River Ecosystem
RFERAC	Regional Fisheries, Ecology, Recreation and Navigation Advisory Committee
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SEORP	South East Otters and Rivers Project
SNCI	Site of Nature Conservation Interest
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
SWS	Southern Water
TFS	Trans-Frontier Shipment (of waste)
TTFD	Thames Tidal Flood Defence
WLMP	Water Level Management Plan

APPENDIX 5: FURTHER INFORMATION

A selection of relevant publications available from the Environment Agency is listed below. This list is only intended as a guide to the type of information available rather than as a complete list as new information is becoming available all the time. Please contact the Customer Contact Department at the Area Office for more information.

Corporate Publications:	<ul style="list-style-type: none"> • An Environmental Strategy for the Millennium and Beyond, Bristol. 1997. • A Better Environment For England and Wales, Bristol. 1998. • Environment Agency Corporate Plan 2000/01, Bristol. 1999 • An Introduction to the Southern Region, Worthing. 1998. • Regional Review and Forward Look: Southern Region. 1999.
Improving Air Quality	<ul style="list-style-type: none"> • The Environment Agency's Pollution Inventory, Bristol, 1999. • The State of the Environment of England and Wales: The Atmosphere, Bristol, 2000.
Managing Water Resources	<ul style="list-style-type: none"> • Policy and Practice for the Protection of Groundwater. Bristol. 1998 • Saving Water: Taking Action. Bristol. 1998. • Abstraction Licensing and Water Resources, Bristol. 1997. • Sustaining Our Resources. Southern Region, Worthing. 1997.
Enhancing Biodiversity	<ul style="list-style-type: none"> • Understanding Buffer Strips, Bristol. 1996. • Freshwater Crayfish in Britain and Ireland, Bristol. 1999. • Freshwater Fisheries and Wildlife Conservation – A Good Practice Guide, Bristol. 1997.
Managing Freshwater Fisheries	<ul style="list-style-type: none"> • Fishing in the South. Southern Region, Worthing. 1999. • Anglers and the Environment Agency 1999-2000, Bristol. 1999. • Catch and Release: A Guide to Careful Salmon Handling, Bristol. 1998. • Coarse Fish Biology and Management, Bristol. 1999.
Delivering Integrated River Basin Management	<ul style="list-style-type: none"> • The Quality of Rivers and Canals in England and Wales, 1995, Bristol. 1997. • The State of the Environment of England and Wales: Fresh Waters – A Summary Report, 1998. Bristol. 1998. • Water Related Recreation Strategy for the Southern Region – Consultation Draft, 1997, Worthing. 1998. • Policy and Practice for the Protection of Floodplains. Bristol. 1997 • The River Darent Action Plan Update 1996, Worthing. 1996.
Conserving the Land	<ul style="list-style-type: none"> • Action Plan for Land Quality, Bristol. 1998. • Action Plan for Flood Defence, Bristol. 1998. • East Kent Sea Defences, Worthing. 1997. • The State of the Environment in England and Wales: The Land, Bristol, 2000.
Managing Waste	<ul style="list-style-type: none"> • Money for Nothing – Your Waste Tips for Free, Bristol. 1998. • The Medway & Swale Waste Minimisation Project, Bristol. 1998. • Waste Minimisation and Waste Management, Bristol. 1997.
Regulating Major Industries	<ul style="list-style-type: none"> • Bringing in Integrated Pollution Prevention and Control, Bristol. 1998. • An Action Plan for Process Industries Regulation, Bristol. 1998 • Radioactive Substances Regulation, Bristol. 1999.

IN ADDITION, FURTHER INFORMATION CAN BE OBTAINED FROM THE AGENCY WEBSITE:

WWW.ENVIRONMENT-AGENCY.GOV.UK

MANAGEMENT AND CONTACTS:

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

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

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD

Tel: 01454 624 400 Fax: 01454 624 409

Internet World Wide Web www.environment-agency.gov.uk

ENVIRONMENT AGENCY REGIONAL OFFICES

ANGLIAN

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

SOUTHERN

Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

MIDLANDS

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

SOUTH WEST

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

NORTH EAST

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

THAMES

Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

NORTH WEST

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

WELSH

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



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



**ENVIRONMENT
AGENCY**

