local environment agency plan

SOUTH CUMBRIA

ACTION PLAN

DECEMBER 1997

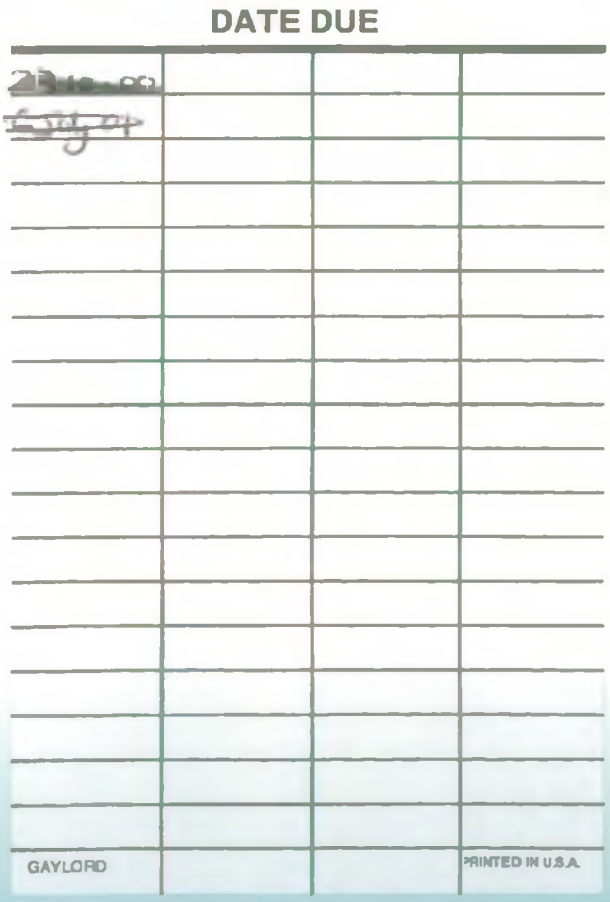
ENVIRONMENT AGENCY

Vision for the Local Environment

The area covered by this plan encompasses a high quality environment, large parts of which are recognised to be of national and international importance. For example much of the area is in the Lake District National Park, including England's most famous lake - Windermere. The area also contains important species and habitats such as the internationally important sites in and around Morecambe Bay and the Duddon Estuary. The quality of the environment also provides a major recreational facility and attracts large numbers of visitors.

The first aim of the Agency is to prevent any deterioration in any aspect of environmental quality for which we have responsibility. We recognise that even in an area of such high environmental quality there is room for improvements. The Agency will therefore seek to make environmental improvements through our planned programmes, but also by taking opportunities for improvements as they arise.

To help promote a sustainable environment the Agency will operate within its regulatory framework but will also work with key partners to tackle environmental issues in an open and holistic way reflecting on the perceptions and aspirations of the inhabitants of South Cumbria. The environment of the area is unique, and in order to target environmental improvements the Agency will seek to improve scientific understanding of the complex environmental processes at work particular in the lakes and estuaries.



contents

list of issues

The area covered by this LEAP contains one of the most valued environments in England and we are keen to play a full positive role in its protection.

This action plan is part of this effort and has been produced with the involvement of many interested parties, including the North Area Environment Group which is made up of representatives of the local community. We are grateful for the contribution made by all the organisations and individuals who have helped us put this plan together and look forward to working with them to protect the environment of South Cumbria.

The plan will have to be flexible to take on new challenges which arise, but I commend the programme of action within the plan which contains all the ingredients to protect and improve the local environment in a sustainable way.

JOHN MARSHALL
Area Manager

foreword

1 Introduction

1.1 The Environment Agency

The Environment Agency is a new body. It has a wide range of duties and powers relating to different aspects of environmental management. It is required and guided by Government to use these duties and powers in order to help achieve the objective of 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. The Agency therefore has to reflect this in the way it works and in the decisions it makes.

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.

Although the Agency only has duties and powers to protect some environmental resources, it will need to contribute to other aspects of environmental management even if these are, in the first instance, the responsibility of others. The Agency can only do this effectively by working in partnership with and through others in order to set common goals and to achieve agreed objectives.

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 LEAPs will also allow the Agency to deploy its resources to best effect and optimise benefit for the local environment.

Our vision is:

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

Our 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.

1.2 The LEAP Process

A 'LEAP' is the Environment Agency's integrated local management plan, for identifying and assessing, prioritising and solving local environmental issues related to the Agency's functions, taking into account the views of the Agency's local customers. The outcome of the process is a local agenda of integrated action for environmental improvement in order to optimise benefit for the local environment.

The production of Local Environment Agency Plans (LEAPs) within the Agency involves three stages:

- The Local Environment Agency Plan Consultation Report.

- The Local Environment Agency Plan five year Action Plan.

- The Annual Review.

Consultation Report

The Consultation Report for this LEAP was published in April 1997. It included a vision, details of the area and the issues and options we have identified. This document was circulated to a wide variety of people and groups who have an interest in the area, to allow them to comment on the issues and options we have raised.

Consultation

The period of consultation lasted for three months, and finished on the 4th July 1997.

Local Environment Agency Plan Action Plan

This document represents the next stage after the Consultation Report. It will have regard to the comments received during the consultation process. Once produced, the Action Plan will form a basis for future actions within the area for the next five years and will be a public document. It will detail the nature of actions required, the cost, timescale and responsible organisations. The Agency will be seeking commitment to planned actions by others wherever possible.

Annual Review

The Agency will be jointly responsible, with other identified organisations and individuals, for implementing the Action Plan. Progress will be monitored and normally reported annually, by means of a review document which will be publicly available.

The review of the document will comprise the following information:

- A detailed comparison of actual progress against planned progress.

- Identification of additional actions to maintain progress in the light of changes in the area.

- Consideration of the need to update the LEAP.

Update requirements will obviously depend on the particular needs of the area. However, updates to the LEAP will normally be undertaken every five years. Key organisation and individuals forwarding comments will receive an annual review paper to update them with the action plan progress.

Constraints

The completed plan will inevitably be subject to some limitations.

To ensure improvements and overcome the problems in the area, actions, which in many cases are the responsibility of other organisations and individuals, will be necessary. The Agency does not have the powers to make the necessary changes, but will use its influence to improve the state of the area wherever possible.

1.3 Sustainable Development and Biodiversity

Sustainable Development

The Agency's overall aim of protecting and enhancing the environment contributes to the Government's and the world wide environmental goal of sustainable development which is defined as:-

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". (Brundtland Definition - Earth Summit, Rio 1992).

This is carried through the Agency's vision statement and requires economic and social activities in England and Wales to be undertaken within the carrying capacity of the environment.

The economy, society and the environment are linked and all form part of a dynamic system that is in constant change. Action, regulation, education and enforcement all have a part to play in working towards sustainable development by the Agency and others.

Integrated environment management is a means by which the Agency can promote sustainable development and LEAPs are an important part of this process.

Biodiversity

Biodiversity is simply a new term meaning the "variety of life".

In the pursuance of the Government's commitment to biodiversity conservation, the Agency will be developing targets for species and habitats of conservation concern. These will relate to the targets for key wetland species and habitats as identified by UK Biodiversity Action Plan, emphasising the contribution that the North West Region can make to the national targets.

2 Overview of the South Cumbria Area

The plan area covers approximately 1,426km^2 and has a population of around 183,000 (1994). The population is concentrated in the southern coastal areas, the Furness peninsular and around Kendal and Windermere. The North Western part of the area is very sparsely populated.

The character of the area is principally rural with agriculture and forestry being the principal land uses. The main exception to this is the Barrow area where the character is more urban, and where there is significant industry. Vickers Shipbuilding and Engineering is the largest industrial employer with other significant manufacturers being Kimberley Clark Paper Mill and the Glaxo Wellcome site at Ulverston.

Approximately 98% of the area is within Cumbria, with a small area around Silverdale being in Lancashire.

Of the District Councils, the plan area includes the whole of Barrow Borough and a significant portion of South Lakeland District. There is also a small area of Copeland Borough in the West and Lancaster City in the area around Silverdale.

A large part of the area is also in the Lake District National Park. The landscape of the area attracts large number of visitors, and tourism is an important and established part of the local economy.

Windermere is the largest natural lake in England at 1,457 hectares and is a focus for much of the tourist activity of the area. For the more serious walker/climber the area contains some of the Lake Districts highest and most scenically beautiful mountains, including the Langdales, Coniston and Kentmere fells.

The environment of the area is relatively unspoiled in comparison with other parts of England. Water and air quality is generally good, and the legacy of land contamination is much less severe than in the more industrialised parts of the North West Region. The landscape of the area is internationally renowned. The area also contains a significant ecological resource including several nationally and internationally important species and habitats which are protected by various designations.

Despite this high quality environment the Agency is not complacent and aims for continuous environmental improvement. Local issues which the Agency is currently seeking to address on its own or with others are highlighted in section 4 of this action plan.

3 Review of the Consultation Process

3.1 The Consultation Process

The South Cumbria Local Environment Agency Plan Consultation Report was launched for public consultation at the Netherwood Hotel, Grange-over-Sands on 18 April, 1997.

The launch was well attended, with approximately 100 delegates present on the day. Approximately 500 copies of the plan have been sent to interested bodies and individuals. The plan has also been made available in local libraries.

The consultation period ended on 4 July. By that date 41 responses had been received, with a further 7 arriving since the close of consultation. Overall, 30 of these responses came during the last two weeks of consultation. All the responses received have been considered during production of this action plan.

All responses have been acknowledged and many have also required a detailed response to tackle the issues raised.

We welcome the comments received and would like to thank all those organisations and individual who responded to the consultation report. A list of consultees who responded is given at Appendix 1.

Overall, there was considerable support for the LEAP process and for the contents of the plan. Most of the detailed comments were directed to the issues.

The various options proposed for resolving the issues attracted differing levels of support. Very few new options were suggested by consultees.

In summary, comments on each issue can be found at Appendix 2.

Comment on part 2 of the Consultation Report

Some consultees also commented on part 2 of the plan, mainly to ask for their particular area of interest to be covered more extensively and to give helpful suggestions about wording or emphasis. A number of errors were also brought to our attention, although none of these detracted from the overall message of the plan. A list of errata in the consultation report is given in Appendix 3.

3.2 Feedback on Consultation and the Process of Producing the Action Plan

All the comments on the consultation report have been considered by a team made up of officers from the Agency and a sub group of the Area Environment Group. The Area Environment Group is a committee set up to advise the Area Manager, including input to LEAPs. The members are drawn from a wide range of interests and represent the community of the area.

The team has discussed which options should be taken forward into this action plan, giving due consideration to all the comments received on each issue. The results of these deliberation are the Action Plans in section 4 of this plan.

In addition to comments on the issues, a number of consultees raised concerns which they felt the plan did not adequately address.

Many of these concerns have been taken up in correspondence with the consultees concerned. However, a number of concerns were expressed by several consultees and the team producing the Action Plan felt it would be appropriate to give some feedback:-

Levels of background radioactivity in the South Cumbria LEAP Area

There were a number of questions asking about the effects on the area from the activities at Sellafield, Heysham Powerstation , and as a result of the Chernobyl accident in 1986.

As mentioned in the main body of the report, the major nuclear establishments at Sellafield and Heysham are licensed to operate by the Nuclear Installation Inspectorate (NII) but discharges from them are authorised by the Environment Agency. As well as controlling the discharges, the Agency also has an extensive independent programme for monitoring these discharges.

In addition to the monitoring carried out by the Environment Agency, the Ministry of Agriculture Fisheries and Food (MAFF) monitors radioactivity in foodstuffs and the food chain and publishes an annual report. BNFL and Nuclear Electric also carry out extensive monitoring to determine whether there are any effects of radiation both close to and at remote distances away from their sites. These monitoring programmes include some locations in South Cumbria.

Reports of all this monitoring work are available for inspection by members of the public. They confirm that exposure to radiation in Cumbria and anywhere else in the UK from these nuclear premises is small by comparison with naturally occurring background levels of radiation . The only area of any concern in Cumbria is from the effects of the 1986 Chernobyl accident for which MAFF are continuing restrictions on the movement and slaughter of sheep in certain areas.

With hindsight the Agency accepts that these concerns should have been covered in more depth in the consultation report and this will be considered for future LEAPS.

REF:
Radioactive Substances Monitoring Programme Report for 1995.
The Environment Agency

MAFF report ref.ISSN 1365-6414
"Radioactivity in Food and the Environment, 1995"
Ministry of Agriculture, Fisheries and Food, Radiological Safety Division, Ergon House, 17 Smith Square, London SW1P 3JR

Acidification

This is a complex area relating to air quality, land use and other factors, many of which are outside our control. We felt section 2.2.3 "Acid Rain" in the consultation report gave adequate coverage of this topic.

We will continue to press for improvements, although the situation is considerably better than was the case in the 1980's.

There are no specific local actions for the Agency within the lifetime of the plan so this will not feature as an issue at this stage.

Biodiversity

A number of consultees were concerned that this aspect of our responsibilities did not features as an issue. We feel that sections 1.4 and 2.1.2 of the consultation report adequately explain our position at the present time with regard to this important work.

In pursuance of the Governments commitment to Biodiversity conservation, the Agency will be developing targets for species and habitats of conservation concern. These will relate to the targets for key wetland species and habitats as identified by the UK Biodiversity Action Plan.

Once targets and plans are agreed internally and with partner organisation it may well be that issues requiring action by the Agency will arise. If this is the case the Agency will raise these as issues within the plan at the annual review stage.

Species and habitats in the area for which the Agency has some responsibility under the UK biodiversity action plan include:-

bittern, freshwater pearl mussel, glutinous snail, sand bowl snail, great crested newt, medicinal leech, natterjack toad, netted carpet moth, otter, pipistrelle bat, allis shad, twaite shad, skylark, slender naiad, water vole, white clawed crayfish and the habitats of coastal and flood plain grazing marsh, mesotrophic lakes and reedbeds.

De canalisation of rivers, and pump drainage in the Lyth Valley

Very few natural main arterial watercourses within the LEAP area are canalised into straight uniform channels. We will seek opportunities to make improvements to these watercourses as part of our routine maintenance works.

The Lyth valley has had a pumped drainage system for 16 years, and the watercourses which feed that system are entirely man made. This drainage pattern has allowed farming to continue in the drained area since the 1850's enclosure acts. The original capital scheme was justified on cost benefit grounds, and we have to re-justify continuing our pumping operations annually. It is not feasible to simply turn off the pumps because of the potential impact on the local farming community. Alternatively the pumps could be passed into private hands but we would be concerned about the potential environmental impact of losing control of this operation.

Poor fisheries habitat in some watercourses

A number of consultees were concerned about the quality of fish habitat in parts of the area. We also feel that there may be room for improvement in some areas. Consequently we are proposing to look at this with a view to identifying and prioritising the worst problems.

This has therefore been added as a new issue in the plan (see issue 23).

The impact of pyrethorid sheep dip on the water environment

There has been concern about the effects on human health from the use of traditional organophosphorous sheep dips.

As a result synthetic pyrethoroid sheep dips are now widely used. These dips have been promoted as safe, but are significantly more toxic to aquatic life than the old organophosphorous dips.

Several large rivers in Cumbria have been severely polluted by these dips and we are keen to ensure this is not repeated.

This has therefore been highlighted as a new issue in the action plan (see issue 24).

Problems of a continuous discharge from a storm sewer overflow at Elterwater Bridge

This problem was brought to our attention by the Lake District National Park Authority and is incorporated into issue 14.

Elver exploitation at Quicksand Pool downstream of Leighton Moss RSPB Reserve

The RSPB are concerned that exploitation of the eel population at Leighton Moss may threaten the important populations of Bittern on the reserve.

We have considerable sympathy for this concern, although no damage is yet proven. As a precautionary approach we have included this issue in the action plan and will explore ways of addressing the situation with the RSPB (see issue 25).

3.3 Issues to be removed from the plan

Since the publication of the consultation report we have decided to remove 2 issues from the plan as follows:-

Issue 5 lack of accurate flow data on the River Kent at Burneside.

The Agency needs to improve the quality of flow data for the River Kent both for low flow and high flow conditions.

The low flows experienced in 1995 and 1996 have emphasised the extent of the problem to the Agency. High flows are needed to estimate flood risks downstream in Kendal.

The existing site does not allow accurate measures to be made as no bed control is in place. There is a risk of embankment instability at existing site if improvements are made, therefore is proposed to relocate the gauging station site where these risks are not present.

Issue 14 Potential flood risk at Haverigg from stormwater overflow

During February 1997 Haverigg was subjected to exceptionally high tides combined with heavy rainfall. Despite the extreme nature of this event no flooding occurred. We are therefore less concerned about the potential for flooding here and, although we will keep a watching brief, are happy to remove this as an issue from the LEAP.

4 Action Plans

Introduction

Implementation of the plan is based on 22 of the 24 key issues set out and discussed in the consultation report plus three new issues. Tackling these issues is the main focus of the plan. Following consultation the preferred options have been translated into actions.

Consequently, the issues are presented with a number of actions a target timetable and the indentification of responsible parties. Where possible, costs have been outlined. This does not necessarily reflect the total cost and is sometimes a projected estimate, to be more accurately costed later. The issues are not numbered in order of priority or importance.

Issue 1 — DRAINAGE PROBLEMS AT GRANGE-OVER-SANDS CAUSED BY SILTATION AT THE FORESHORE

There is concern from Grange Town Council that the existing retaining wall at the River Winster outfall within the estuary is causing the River Kent channel to be restrained from being located adjacent to the promenade at Grange-over-Sands. The Town Council are concerned that this has led to siltation adjacent to the promenade at Grange over Sands which has also encouraged the growth of Spartina anglica grass. The Council feel the grass is unsightly and believe the situation has also caused surface water drainage problems in lower lying parts of the town.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Investigate problem through Shoreline Management Plan (SMP) Group and implement recommendations.	Environment Agency SLDC Lancaster City Council		£12K for study and investig-ation only	✓	✓	✓	✓		A Fraser

SLDC – South Lakeland District Council

Issue 2 — FLOODING PROBLEMS

The Agency aims to provide effective flood defences for protection of people and property to a standard appropriate to land use as well as the Agency's and Ministry of Agriculture's indicative standards where it is cost beneficial to do so. Schemes which the Agency feels are justifiable within the LEAP area are listed below in approximate priority order.

1st Poaka Beck Dalton-in-Furness

Existing river channel capacity, embankments and culvert entrances are not up to urban flood defence standards.

2nd Arrad Marsh Sea Defence Embankment

Existing privately maintained Sea Defence Embankment is porous under high tide conditions. Up to 15 properties and agricultural land are vulnerable under extreme tidal surge conditions.

3rd River Kent, Arnside Promenade Sea Defence

Up to 14 properties are vulnerable to tidal flooding adjacent to Arnside promenade.

4th Church Beck Coniston

Flooding occurred in 1995 when small industrial units were inundated by Church Beck.

5th= River Rothay, Ambleside

Existing flood defence protection standards are not in place to protect properties between the River Rothay and the town.

5th= River Kent Carling Steps

Several properties are vulnerable to fluvial flooding from the River Kent under extreme conditions.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		98 99 2000 2001 →	
Investigate the viability of options to resolve the problems (considering conservation and economic aspects) and promote projects accordingly.	Environment Agency		£251K	✓ ✓ ✓ ✓ 80K 91K 40K 40K	A Fraser

Issue 3 — LACK OF SUFFICIENTLY FOCUSSED FLOOD WARNING SERVICE FOR COASTAL AREA AT RISK OF FLOODING

Following the introduction of the flood warning dissemination system for the fluvial (river) risk zones; a programme of implementing a similar operation for the coastal tidal risk zones is required.

This will involve a programme to define more precisely the areas at risk along the coast. These will generally be areas where the land is below the highest recorded tidal levels. The precise height of the highest known tides will vary around the coast depending on the degree of exposure to tidal surges and wind induced waves. There may be a need to increase the number of tidal monitoring stations in order to undertake these measurements.

Once the zones are identified it will be necessary to assess the risk of overtopping of the existing defences associated with each flood risk zone.

The Agency will then be in a position to implement a new flood warning system for residents and property owners within each zone.

The Agency currently operates a system which gives a general warning of coastal flooding when high tides are expected, but the definition of flooding zones is aimed at improving this service.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		98 99 2000 2001 →	
Devise an improved Operation Neptune warning plan which identifies specific risk zones linked to overtopping of existing defences.	Environment Agency		£12K (Staff time)	✓ ✓ ✓ ✓	A Fraser

Issue 4 — THE IMPACT ON GROUNDWATER FROM POTENTIAL SALINE INTRUSION

Heavy abstraction of groundwater for industrial and public supply from the sandstone aquifer around Barrow has exceeded natural recharge. This has resulted in a fall in water levels to well below sea level in areas near the coast. There is a risk of deterioration in groundwater quality from saline water intrusion from the sea.

Abstractors in the affected area are operating within their licensed quantities.

To ensure sustainable use of groundwater the only realistic option open to the Agency is to follow a policy of a strong presumption against permitting further abstractions within the Furness aquifer. Developers wishing to utilise mains water will not be affected by this embargo.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		98 99 2000 2001 →	
Strong presumptions against granting abstraction licences unless applicant can demonstrate, to the Agency's satisfaction, that there will be no detriment to the aquifer.	Environment Agency	Local Authorities Developers	£5K (Staff time)	✓ ✓ ✓ ✓	R Stead
Recommend refusal of planning application unless there is a satisfactory means of water supply.	Environment Agency Local Authorities			✓ ✓ ✓ ✓	

Issue 5 — THE ENVIRONMENTAL IMPACT OF OLD LANDFILL SITES

Prior to 1976 landfill sites were operated without a waste disposal licence. In most instances few records of how these sites were managed or what types of waste were disposed of were kept or still exist. The Agency is consulted by local Planning Authorities regarding proposed developments on or near to "closed" and current landfill sites. In the late 1980s the Waste Regulation Authority consulted all District and Parish Councils to establish a database of all known landfills and any available background information. The South Cumbria LEAP area includes an estimated 130 such sites.

For many sites the only known information is an approximate location. This means that when the Agency is consulted it is unable to provide a detailed or positive response.

The Agency is also unaware of any environmental pollution or potential pollution that such sites may cause, this shortfall needs to be addressed. To fill this gap we intend to undertake an information gathering exercise to assess the state of landfill sites and their environmental impact.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Information gathering exercise on selected landfill sites	Environment Agency Local Authorities		£10K	✓	✓	✓		✓	C Kearton

Issue 6 — POOR ENVIRONMENTAL QUALITY IN SOME PARTS OF THE RIVER BELA CATCHMENT

Peasey Beck is a tributary of the River Bela and currently fails to meet the objectives of Rivers Ecosystem (RE) Class 1. This RE failure is supported by biological data.

The beck drains a large agricultural catchment which is a potential source of contamination. In addition water is abstracted from the beck and used to maintain water levels in Lancaster Canal.

Coincidentally the fisheries strategic survey for 1995 found a number of sites in the catchment with lower than expected trout production, including sites in Peasey Beck. The poor trout production may be linked to the water quality and abstraction arrangements outlined above. Other contributory factors may include restricted areas of spawning substrate, access for adult fish or poor juvenile fish habitat.

All these factors require further investigation and appropriate follow up action.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Joint inter-departmental investigation of abstraction for Lancaster Canal.	Environment Agency	British Waterways	2K	✓ ✓	R Stead
Investigate extent and quality of fisheries habitats in Peasey Beck and other parts of the Bela catchment.	Environment Agency		1.1K	✓ ✓	E Black
Investigate reasons for water quality problems.	Environment Agency		*£2.5K	✓ ✓ ✓ ✓ ✓	G Riley

* Final cost dependent on outcome of initial investigations.

Issue 7 — NEED FOR A BETTER STRATEGIC RESPONSE TO DROUGHTS

In 1995 and 1996 application for drought orders in highly sensitive environmental sites in Cumbria resulted in one of the Environment Agency's predecessor bodies facing detailed questions on a wide range of environmental issues. One such site covered by this plan is Lake Windermere.

In similar situations in the future the Agency will need to make clear statements about potential impacts on ecology, landscape and amenity issues and demonstrate that the issues have been investigated and reasonably assessed. To enable such a response to be made there is a need to collect and collate available baseline environmental information in collaboration with partner organisations. This will allow an agreed reference manual of environmental assessments to be used in response to any future drought episodes.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		98 99 2000 2001 →	
Studies of environmental interests of lakes, reservoirs and rivers in relation to drought.	Environment Agency LDNP English Nature NWW Ltd		25K	✓ ✓ ✓ ✓	R Stead
Encourage NWW to undertake an "environmentally friendly" abstraction regime. Eg abstract at times of plenty to minimise the need for abstraction during dry periods.	NWW Ltd Environment Agency		£5K	✓ ✓ ✓ ✓	R Stead

LDNP - Lake District National Park Authority

Issue 8 — ADVERSE IMPACT OF EFFLUENT DISCHARGES ON THE LEVEN ESTUARY

There are significant discharges to the Leven Estuary from the Glaxo-Wellcome site at Ulverston as well as from North West Water Ltd Ulverston Sewage Treatment Works. The estuary around Carter Pool is currently classified as being of a poor quality in the Agency estuary water quality classification scheme.

The discharges are currently controlled by Environment Agency permissions which specify the permitted nature and volume of the discharge as well as the timing of discharges in relation to the tides.

The Agency is concerned about the potential combined effects of these discharges on the environment of the estuary. The discharge plume is at times visible in the estuary and there is public perception that this is damaging to the environment.

In response to the situation the Environment Agency is currently undertaking a two year study into the overall impact of these discharges on the estuary and its migratory fishery. The study is due to be completed by the end of 1997. This will provide a baseline of data for reviewing the permissions to discharge.

Independently of the study, NWW will be imporoving treatment at the Ulverston Sewage Treatment Works, from primary to secondary treatment, to meet the requirements of the EC Urban Wastewater Treatment Directive.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Use results of Environment Agency estuary study to promote improved effluent quality.	Environment Agency		*£2K	✓	✓	✓	✓	✓	J Kidger J Isherwood

* Final cost dependent on the outcome of the study.

Issue 9 — IMPACT OF DISCHARGES TO CAVENDISH DOCK IN BARROW

Cavendish Dock is a partially enclosed area of water which has been artificially warmed by discharges of cooling water from Roosecote Power Station.

The dock is also thought to be enriched by discharges from sewer overflows which reach the dock via Mill Beck.

Over time the dock has developed its own eco-system and is designated a Site of Special Scientific Interest (SSSI).

The extensive plant growth in the dock causes high pH levels which exacerbates the toxicity of ammonia present in the dock. In addition there are occasional "blooms" of potentially toxic blue-green algae. In order to protect the SSSI there is a need to understand the eco-system within the dock and agree how it should be managed. All these factors have also been detrimental to the fishery.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Survey aimed at understanding the ecological balance in the dock and the part played by current discharges to the dock.	Power Station Operator	English Nature Environment Agency		✓	✓	✓	✓	✓	J Kidger
Use results of survey to decide on the future Management of the dock.	Environment Agency English Nature Power Station Operator		*£1K	✓	✓	✓	✓	✓	J Kidger

* Final costs dependent on the results of the survey.

Issue 10 — EUTROPHICATION IN ELTERWATER

Elterwater has been designated by English Nature as a Site of Scientific Interest (SSSI) for its diverse hydrosere which ranges from open water through swamp and fen to marshy grassland and Carr woodlands.

The lake acts as though it were divided into 3 discreet "basins" with relatively slow flow through and interchange of water. Langdale sewage treatment works discharges treated sewage effluent into the inner basin of the lake. This contributes more than 50% of the total phosphorus load to the lake and 77% of the most usable form of phosphorus (ortho-phosphate), leading to hyper-eutrophication (nutrient enrichment) of the inner basin. The resultant reduction in water quality leads to total de-oxygenation of deep water in the inner basin. The sediments are also heavily enriched, and this large pool of nutrient is likely to cause problems in the long term even if the impact from the sewage treatment works is removed. Consideration needs to be given as to whether there is a practical way of remediating the nutrient rich sediments.

Studies for the Environment Agency show that moving the sewage discharge to the River Brathay is the most sustainable solution.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Re-route sewage discharge to River Brathay downstream of the lake.	NWW Ltd Environment Agency		£5K	✓ ✓	L Beattie
Assess natural remediation process and timescales.	Environment Agency		£30K	✓ ✓ ✓ ✓ ✓	L Beattie
Continue to monitor for phosphorous in River Brathay to assess future needs.	Environment Agency		£1K	✓ ✓ ✓ ✓ ✓	L Beattie

Issue 11 — EUTROPHICATION OF ESTHWAITE WATER

Esthwaite has been designated by English Nature as a Site of Special Scientific Interest (SSSI) and is also a RAMSAR site because of its international importance as a wetland. The site is of national importance for its waterweed species and communities.

Data gathered by the Agency shows the lake to be hyper-eutrophic (very nutrient enriched) with all the attendant water and sediment quality problems and algal blooms associated with this trophic status.

Hawkshead Sewage Treatment Works (STW) discharges treated sewage effluent to the lake. North West Water Ltd installed phosphorus removal plant at the sewage works in 1986. This reduced the contribution of total phosphorus input to the lake by the sewage works from 90% to around 30% or less. Improvement is expected in the long term, but to date investigations have been inconclusive.

The phosphorus loading in Cunsey Beck which drains the lake suggests that there are other sources of phosphorus contributing to the eutrophication.

Future investigations will focus on assessing the relative impact from all inputs (ie STW, fish farm, land management, lakes internal nutrient pool) to the lake and the modelling of various scenarios. The results will be used to balance the benefits of a range of possible actions both to the community and the environment.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Quantify the relative importance of the inputs of phosphorous to the lake from: - Sewage works - Fish farm - Land management - Shallow water recycling from sediments	Environment Agency English Nature Others dependent on findings		*£7K	✓ ✓	L Beattie
Survey of local flora (macrophytes)	Environment Agency English Nature		£1K	✓ ✓	S Garner

* Dependent on availability of funding which has not yet been secured.

Issue 12 — EUTROPHICATION IN GRASMERE

The sewage treatment works (STW) at Grasmere is hydraulically overloaded leading to a constant discharge of weak untreated sewage to Grasmere Lake. It is thought that the overloading is caused by groundwater infiltration into the sewerage system. The STW is the main source of the nutrient causing eutrophication in the lake.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Survey sewers to assess scope and extent of infiltration problems.	NWW Ltd		£0.5K	✓ ✓	L Beattie
Act on results of survey to resolve infiltration problems.	NWW Ltd			Dependent on results of above survey	L Beattie
Consider phosphorous removal once infiltration is solved.	NWW Ltd		£10K	Dependent on results of survey and timescale to resolve infiltration	L Beattie

Issue 13 — IMPACT OF WATER ABSTRACTION ON THE RIVER LEVEN MIGRATORY FISHERY

There are two power generating sites on the River Leven, one at Backbarrow and one at Low Wood. The associated abstraction licences are licences of right and the volumes are quite large (not exceeding 253 Mld/66,199 Ml per year at Backbarrow and similarly 550 Mld/127,427 Ml per year at Low Wood).

There is a difference of approximately 1km between the abstraction and return point at the downstream site (Low Wood) and this has an impact on fish movement, particularly in association with the weir at the abstraction point. The Agency has an agreement with the owners that they will not generate when the river flow drops below a certain level. The agreed level varies depending on the month. The terms of this agreement are based on the best compromise between costs and benefits.

Neither of the two sites are screened and thus fish are not currently excluded. Adult fish spawn in the mill race that feeds the Low Wood site. In excess of 30 redds were counted in the 1995/96 spawning season and their progeny are unlikely to thrive. Kelts and smolts also are drawn into the Mill Race and hence the turbines where some are believed to be damaged or killed. Between 3,000 and 5,000 smolts were observed in the Low Wood mill race in May 1996.

Under the Salmon and Freshwater Fisheries Act 1975 Section 14, as amended by the Environment Act 1995 Schedule 15, screening obligations imposed on occupiers of mills do not apply to conduits or channels constructed before 18 July 1923.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Screen intake at Low Wood.	Uncertain legal responsib-ilities		*20K	✓ ✓	E Black
Screen intake at Backbarrow.	No legal responsib-ility Environment Agency have powers to install		*20K	✓ ✓ ✓	E Black

* Preliminary investigations have yet to reveal an ideal solution to these 2 problems, and the final costs to the Agency will depend upon defining responsibilities for action.

Issue 14 — ADVERSE IMPACT OF DISCHARGES FROM COMBINED SEWERAGE SYSTEMS

Sewers on the catchment are largely combined with both foul and surface waters (road drainage etc) being transported in the same sewer for treatment at Sewage Treatment Works (STW's).

Combined Sewer Overflows (CSO's) are located on sewers or at pumping stations and discharge to watercourses. They are designed to prevent foul flooding by relieving the sewerage network of excess flows during storm conditions. When properly designed and constructed they should only operate when there is adequate dilution available in the receiving watercourse. There are also sewer overflows at some STW's where there may be some treatment given to the storm sewage.

In some cases old sewers have become overloaded due to increased residential and commercial development. This has resulted in more frequent discharges than is now considered acceptable. Within the plan area the following CSOs have been identified as requiring priority attention.

At Mill Beck in Barrow the Agency will object to Barrow Borough Council on future planning applications which will connect to the sewerage system upstream of the Mill Beck CSO. This is to reduce the environmental problem being exacerbated and as a way to prevent further algal blooms in Cavendish Dock.

Barrow Borough Council and North West Water are aware of the Agency's stance and we will be encouraging developers to seek alternative arrangements for disposal of foul sewage to the main sewer until the matter is resolved.

CSO	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
		LEAD	OTHER		97 98 99 2000 2001 →	
Mill Beck (Furness Abbey). This reach fails to meet it's water quality objective.	Investigate removal of storm sewage overflows	NWW Ltd		£1.5K	✓ ✓ ✓ ✓	J Kidger & L Beattie
Gleaston. Combined Sewer Overflow.	Investigate removal of overflows and/or more efficient screening	NWW Ltd		£0.5K	Not currently programmed for improvement prior to 2000	J Kidger

CSO	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
		LEAD	OTHER		97 98 99 2000 2001 —→	
Ulverston Combined Sewer Overflow.	Efficient screening to prevent debris entering the watercourse	NWW Ltd		£0.5K	✓	J Kidger
Elterwater CSO at Elterwater Bridge.	Investigate infiltration problems with a view to minimising frequency and duration of discharges	NWW Ltd		£1K	Scoping study by NWW completed. Resolution and timescale dependent upon findings of this study	L Beattie

Issue 15 — COPPER ENRICHMENT IN CONISTON WATER

Studies on Coniston Water have found copper enrichment of the Lake sediments. It was thought that this was caused by previous mineral working in the surrounding catchment and that the metals would be 'locked up' in the deeper sediment layers effectively immobilised as sulphides in a stongly reducing environment and unable to present a threat to the lakes water quality unless mixed into oxygenated water by eg. dredging activity.

However, since the consultation report studies have shown that the copper (and associated zinc) levels present in the top 5cm sediment layer are also elevated, indicating that present inputs are continuing to have an impact on the lake. Additionally the lake is demonstrating an impoverished benthic invertebrate community which could be indicative of a toxic effect from the current copper levels.

1. Current input of copper (and associated zinc) into the lake.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Assess how the copper is entering the lake, and in what quantities.	Environment Agency		£25K	Dependent upon acquisition of funding	L Beattie
Assess possible remediation techniques to reduce copper input to the lake.	Environment Agency		£25K	Dependent upon acquisition of funding	L Beattie
Source funds to enable us to proceed with actions 1 and 2 above.	Environment Agency		£0.2K	✓	L Beattie

2. The potential for re-mobilisation of the sedimentary metals into the lake water.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Research project into changes in sediment condition that could lead to the release of sediment chemicals such as metals.	Environment Agency		£40K	Funding and approvals to be progressed	L Beattie
Source funds to enable us to proceed with above research.	Environment Agency		£0.2K	✓ ✓	L Beattie

Issue 16 — PREMATURE STORM DISCHARGES AT SEWAGE TREATMENT WORKS

Sewage Treatment Works (STW's) normally have a system for storing and treating excess flows of sewage which reach them during storm events when rainfall increases the flow in the sewers. At Cartmel and Staveley the STW's are constantly overloaded leading to a permanent discharge of partially treated storm sewage. The principal cause is infiltration of groundwater into the sewers.

This permanent storm sewage discharge is causing aesthetic problems because of sewage litter in the river and is also causing localised pollution. In the case of Staveley STW, there is also some concern over the potential impact of the discharges on native crayfish populations in the River Kent.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Cartmel STW Investigation into the infiltration problem.	NWW Ltd		*£1K	✓	✓	✓	✓	✓	J Kidger
Staveley STW Investigation into the infiltration problem.	NWW Ltd		*£1K	✓	✓	✓	✓	✓	G Riley

* Final cost dependent on outcome of investigations

Issue 17 — INADEQUATE SEWAGE TREATMENT

Different levels of sewage treatment are required for different watercourses in order to achieve adequate environmental protection. In the cases below the treatment arrangements are not adequate to protect water quality.

LOCATION	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
		LEAD	OTHER		97 98 99 2000 2001 →	
Meathop Marsh drain downstream of Meathop STW. Failure to meet water quality objective of RE4.	Improve treatment at Meathop STW	NWW Ltd		*£2K	Currently being cost benefited as a potential candidate for inclusion in North West Water's future investment plan (AMP3)	L Beattie
Holme Beck downstream of Holme STW. Failure to meet Water Quality Objective.	Improve treatment at Holme STW	NWW Ltd		*£1K	Currently being cost benefited as a potential candidate for inclusion in North West Water's future investment plan (AMP3)	L Beattie

* Final cost dependent on level of investigation and monitoring undertaken by the Agency.

LOCATION	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
		LEAD	OTHER		97 98 99 2000 2001 →	
Duddon Estuary Villages (see below).	Improved treatment	NWW Ltd		*£2.5K	✓ ✓ ✓ ✓ ✓ ✓	J Kidger

These discharges give rise to large numbers of pollution incident complaints and cause problems of unsightly sewage litter. The villages concerned are Broughton-in-Furness, Kirkby-in-Furness, Chapels, Soutergate, Foxfield and Skellow Crags.

LOCATION	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
		LEAD	OTHER		97 98 99 2000 2001 →	
Walney Island and Barrow Island Sewage Effluent. (see below)	Diversion to Barrow STW.	NWW Ltd		*£17K	✓ ✓ ✓ ✓	J Kidger

These discharges are in the vicinity of bathing waters which have failed to meet the standards laid down in the EC Bathing Water Directive. They also give rise to complaints, and cause problems of unsightly sewage litter.

Issue 18 — LACK OF RURAL SEWERAGE LEADING TO LOCALISED POLLUTION

Lack of rural sewerage systems and associated sewage treatment has led to a multiplication of private septic tanks and treatment plants in some areas. This makes control difficult and has led to localised pollution. The cost of installing first time rural sewerage maybe substantial and a mechanism for prioritising schemes is not yet in place. Local communities must approach NWW to request provision of facilities before a scheme can be considered, however application does not in itself guarantee that a sewerage scheme will be provided. Within the LEAP area, the Agency considers the following locations to have the most significant problems. However, this list is not definitive, and other local communities may wish to approach North West Water independently with a view to having sewerage systems installed.

LOCATION	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
		LEAD	OTHER		97 98 99 2000 2001 →	
Silecroft Beck This reach fails to meet its Water Quality Objective of RE2.	Catchment campaign to identify polluting inputs and take action. Provision of public sewer under section 101A of the Water Industry Act 1991 or first time rural sewage treatment.	Agency NWW Ltd Local Communities		*£1.5K	Dependent on applications being lodged by the community and approved by North West Water. Where an application is refused the Agency will act as an arbiter to assess the benefits and suitability of the proposal	J Kidger
Black Beck (The Green) This reach fails to meet its Water Quality Objective of RE1.	Provision of public sewer under section 101A of the Water Industry Act 1991 or first time rural sewage treatment.	NWW Ltd Local Communities		*£1.5K	See above	J Kidger
Ings Village.	Provision of public sewer under section 101A of the Water Industry Act 1991 or first time rural sewage treatment.	NWW Ltd Local Communities		*£1.5K	See above	G Riley

LOCATION	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
		LEAD	OTHER		97 98 99 2000 2001 →	
Brathay downstream of Ambleside.	Provision of public sewer under section 101A of the Water Industry Act 1991 or first time rural sewage treatment	NWW Ltd Local Communities		*£1.5K	See above	G Riley
Troutbeck Bridge.	Provision of public sewer under section 101A of the Water Industry Act 1991 or first time rural sewage treatment	NWW Ltd Local Communities		*£1.5K	See above	G Riley
Silverdale No public sewage system in place, plus limestone base rock leads to potential and actual groundwater contamin-ation.	1. Provision of public sewer under section 101A of the Water Industry Act 1991 or first time rural sewage treatment 2. Object at the planning stage to future development(s) which will add to the problem 3. Require any permitted development to install extensive treatment facilities	NWW Ltd Local Communities Environment Agency Local Authority and developers Environment Agency		*£1.5K	See above	G Riley

* It should be noted that the above require the communities to act before the Agency carries out significant work.

Issue 19 — IMPACT OF INDUSTRIAL DISCHARGES ON SCARTH HOLE IN WALNEY CHANNEL

Industrial discharges to Scarth Hole in Walney Channel cause considerable concern, partly because of the status as a Site of Special Scientific Interest (SSSI).

Furthermore there are unique tidal exchanges which mean that the water body is not "changed" on a daily basis. Low water can leave discharges exposed.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
1. Improvement of trade effluent quality.	Industry Environment Agency		£3.7K	✓ ✓ ✓ ✓ ✓	J Kidger

Issue 20 — FAILURES TO MEET WATER QUALITY OBJECTIVES (WQOS)

The following failures to meet riverine water quality objectives are attributable to specific known causes some of which require further investigation, and a programme of improvement.

LOCATION	ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
		LEAD	OTHER		97	98	99	2000	2001 →	
Blelham Beck (QSL Blelham Tarn to Windermere)	Investigation of potential issues and report back	Environment Agency		£1.5K	✓	✓	✓	✓		G Riley
Quicksands Pool (QSL Leighton Moss to FWL (Carnforth Railway)	Investigation of issues. eg - saline intrusion - lake management at Leighton Moss - possible polluting inputs	Environment Agency		£1.5K	✓	✓	✓	✓		G Riley
Witherslack Main Drain (QSL Bridge House to FWL (Tidal Doors)	Catchment campaign to identify polluting inputs	Environment Agency		£1.5K	✓	✓	✓	✓		G Riley
Winster (Helton Tarn to Freshwater limit)	Catchment campaign to identify polluting inputs	Environment Agency		£1.5K	✓	✓	✓	✓		G Riley
Holme Beck (QSL Holme to Holme STW)	Identify more representative sample point	Environment Agency		£0.5K	✓	✓				L Beattie
Holme Beck Trib 10 (QSL at M6 to Holme Beck)	Identify more representative sample point	Environment Agency		£0.2K	✓	✓				L Beattie

FWL - Freshwater Limit QSL - Quality Survey Limit WQO - Water Quality Objectives

The following failures to meet water quality objectives are dealt with under the issues indicated.

Issue 17 Inadequate Sewage Treatment

Meathop Marsh Drain at Meathop
Holme Beck at Holme

Issue 7 Poor trout production and failure to meet water quality objective in Peasey Beck

Peasey Beck

Issue 14 Impact of discharges from combined sewerage systems

Mill Beck at Furness Abbey

Issue 18 Lack of rural sewerage

Silecroft Beck

Issue 21 — RIVER SPECIFIC ISSUES

1. Mercury in the River Kent

Background levels of mercury have been found to be higher than expected. The source is unknown.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Investigation of Mercury levels	Environment Agency		*£3.6K	✓	✓	✓			G Riley

2. Foam on the River Kent

Inputs to Kendal STW contain detergents which are not removed by the treatment process. This leads to foaming on the river downstream of the sewage works.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
1. Continued utilisation of anti foam at Kendal STW.	NWW Ltd		------	✓	✓	✓	✓	✓	G Riley
2. Control of trade effluent imputs to sewer which then find their way to the STW.	NWW Ltd		------	✓	✓	✓	✓	✓	

3. Arnside Spring

This limestone spring causes a localised nuisance when it become contaminated with organic material such as farm effluent or septic tank effluent.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Investigations into limestone geology and hydrology with a view to identifying and eliminating sources of pollution.	Environment Agency		*£3.0K	✓ ✓ ✓ ✓	G Riley

4. Mill Beck

This is a good quality stream flowing through Windermere Town where it is valued for its amenity. There is a history of intermittent pollution of the stream involving farm effluent, sewage and wrong connections in the Windermere area.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Campaign to identify and eliminate	Environment Agency Local Authority Local Community		*£3.5K	✓ ✓	G Riley

* Estimated costs of investigations

Issue 22 — FAILURE TO MEET EC BATHING WATER DIRECTIVE STANDARDS

Despite significant investment in new sewerage systems and sewage treatment facilities by North West Water Ltd the identified bathing waters in the area have intermittently failed to meet the standards laid down in the EC Bathing Water Directive.

There is a need to identify the causes of these failures so that remedial action can be targeted. This work has already begun and will be forward throughout 1997. The initial report on these investigations should be available in January 1998.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
Monitoring of bathing waters and intensive investigations to assess reasons for failures and identify any improvement work required.	Environment Agency NWW Ltd Industry		£84K	✓ ✓	P Wiggins
Action to resolve problems identified.	NWW Ltd Industry and others depending on out-comes of investigations		*£9K	Dependent upon the outcomes of the above investigations.	P Wiggins

* If there is a need to extend the 1997 project there is a potential for additional expenditure of approximately £200,000 for the whole Cumbria Coast of which a proportion would be spent in the LEAP area.

The current position with regard to compliance with the Directive in the area is as follows:-

SITE	GRID REF	1995	1996	1997
Silecroft	SD 1200 8120	Pass	Pass	Pass
Roan Head	SD 1980 7580	Fail	Pass	Pass
Haverigg	SD 1600 7780	Fail	Fail	Fail
Bardsea	SD 3000 7400	Fail	Fail	Fail
Aldingham	SD 2830 7090	Pass	Fail	Fail
Newbiggin	SD 2730 6940	Fail	Pass	Fail
Askam-in-Furness	SD 2090 7820	Fail	Fail	Fail
Walney West Shore	SD 1700 7000	Fail	Fail	Pass
Walney Sandy Gap	SD 1750 6810	Pass	Pass	Pass
Walney Bigger Bank	SD 1780 6730	Pass	Pass	Pass

New Issues

Issue 23 — POOR HABITAT IN THE RIVERS GOWAN, GILPIN, LICKLE, WINSTER, LANGDALE BECK AND RUSLAND POOL

There is a feeling inside and outside the Agency that fisheries habitat in some of the areas rivers would benefit from improvement work. There is a need to evaluate and quantify the problem so that action can be taken in a logical prioritised way.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Assess habitat in the above watercourses and prepare action plans.	Environment Agency		£1K per river further costs depend on recomm-endations	✓	✓		✓		E Black
Monitor the impact of any improvement work undertaken.	Environment Agency		£1K per annum	✓	✓		✓		E Black

Issue 24 — WATER POLLUTION FROM SHEEP DIP CHEMICALS

Prior to 1991 all sheep farmers were required by law to dip their animals for the control of sheep scab. Due to significant health concerns with the traditional organophosphorous based sheep dip chemicals, this legal requirement has been dropped and the pharmaceutical industry has been developing alternative chemicals. These new chemicals, known as synthetic pyrethroids (SP's), are considered to be safer for those involved in the dipping of sheep and many framers have now switched to using them for the control of sheep scab and a range of other ailments.

Unfortunately SP's can be up to 100x more toxic to aquatic life than the chemicals they are replacing.

Over the last 2 years there has been a number of serious pollution incidents affecting Cumbrian rivers involving the use of SP sheep dip. In each case considerable lengths of watercourse have been affected resulting in a complete loss or depletion of riverine insect life. Given that there are an estimated 4300 dipping operations in the county, the potential for continued serious pollution problems is very high.

Whilst these chemicals are licensed vetinary medicines, the licensing body, MAFF, has no remit to consider the wider environmental implications of their use. The Agency recognises the need for farmers to treat their animals for a range of ailments but would like to see a balanced approach which allows farmers to ensure good standards of animal husbandry whilst at the same time affording adequate protection of the environment.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Continue extensive educational program for farmers.	Agency		*see note 1	✓	✓	✓	✓	✓	P Wiggins
Target specific catchments affected or known to be vulnerable.	Agency			✓	✓	✓	✓	✓	P Wiggins
Rigorous enforcement of pollution legislation.	Agency			✓	✓	✓	✓	✓	P Wiggins

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION					AGENCY ISSUE LEADER
	LEAD	OTHER		97	98	99	2000	2001 →	
Encourage the use of low volume alternatives to plunge dipping such as injectable treatment.	Agency MAFF			✓	✓	✓	✓	✓	P Wiggins
Lobby for new legislation to control the use & disposal of sheep dip.	Agency DETR MAFF Industry			✓	✓	✓	✓	✓	P Wiggins

DETR - Department of the Environment, Transport and the Regions.
MAFF - Ministry of Agriculture Fisheries and Food.

*Note 1 - The cost of these actions cannot be accurately costed because the problem is fluid and the precise nature and volume of work to progress the actions cannot be identified at this stage.

Issue 25 — ELVER EXPLOITATION IN QUICKSAND POOL DOWN STREAM OF LEIGHTON MOSS RSPB RESERVE

Leighton Moss is a designated Site of Special Scientific Interest mainly on account of the bird population that either breed or winter on the site. These populations have been recognised as being of international importance through the designation of sites as a Special Protection Area under the EC Birds Directive.

Eels are an important food supply for a variety of birds but in particular for one species, the bittern.

Leighton Moss is the only site outside of East Anglia where bittern breed, and approximately one quarter of the total British breeding population occur on site.

There is concern that elvers are being fished from a quicksand pool downstream of the site and that the removal of large numbers of eels could adversely affect the numbers of bittern breeding and wintering on the site.

An eel net licence is required from the Environment Agency only to authorise use of the instrument, it does not confer a specific right to fish in any specific locality. It is up to the licensee to obtain permission to actively fish in a particular locality.

ACTIONS	RESPONSIBILITY		EST. COST (AGENCY)	DURATION OF ACTION	AGENCY ISSUE LEADER
	LEAD	OTHER		97 98 99 2000 2001 →	
RSPB to reach agreement purchase the fishing rights from appropriate farmer.	RSPB			✓ ✓	S Garner
Investigate potential for fisheries byelaw change to protect eel numbers in this local established case.	RSPB Agency	Unknown		✓ ✓	

5 Protection through Partnership

Introduction

Much of the day to day work of the Agency is aimed at protecting the environment through education, prevention and environmental improvement.

This important work does not feature in the LEAP because the plan is primarily intended to address environmental problems and these are highlighted as issues. Much of this routine work is undertaken by the Agency to fulfil its duties and responsibilities. Examples include routine inspection at landfill sites to ensure licence conditions are being compiled with, anti-poaching activities by Agency bailiffs, routine river sampling to detect trends in water quality and site visits to factories/sewage works etc to ensure discharge authorisation are being compiled with.

However, the Agency recognises that it is not the only body operating in the field of environmental protection and improvement and that our responsibilities often overlap with those of other organisations.

Where appropriate the Agency will work with partners to achieve environmental protection and improvements. Much of this co-operation goes on at a day to day level between officers in the field and does not require any formal setting up.

Examples include negotiation between Agency inspectors and representatives of individual companies over programmes of investment to improve environmental performance, or assistance afforded by the Police in difficult enforcement action.

However, in some cases the Agency does get involved in more formal partnerships and some of those which are relevant to this LEAP are are outlined below. Others are mentioned under the relevant issues in Section 4 of this plan.

Shoreline Management Plans (SMP's)

Shoreline Management Plans are produced by maritime local authorities and provide a strategic framework for coastal defences in an area. The SMP's covering the LEAP are from Rossall point to Earnse point (Morecambe Bay SMP) lead by Lancaster City Council and from Earnse point to St Bees head by Copeland Borough Council. Both these plans are currently in preparation and the Agency is involved in this work.

Planning Liaison

The Agency seeks to work with Local Planning Authorities to ensure development does not damage the environment by use of a planning visitor system. This involves the Agency scrutinising all planning applications in the area and where necessary passing appropriate comments to the Local Planning Authority.

Morecambe Bay Conservation Group

This is an informal group intended to focus public attention on the value of the Bay. A prime objective is to encourage educating by public participation.

Various activities are organised annually to increase public knowledge about the Bay its management, conservation issue, industries etc.

The Agency is a member of the steering group which produces and organises the annual programme.

M6 Corridor Protection Policy

This is a new venture for the Agency in partnership with the Cumbria County Council and is at an early stage. The aim is to look at the Cumbrian M6 corridor and its drainage including all discharges to watercourses or land from motorway drainage. Once the drainage routes are established the Agency will prioritise the potential environmental impact of each discharge point. This will allow the Agency to draw up an action plan to deal with potential problems in priority order. Secondly, it will aid pollution prevention and alleviation following road traffic incidents.

This is likely to be a long term project extending beyond the lifetime of this plan, particularly if the costs of implementing any proposed action is very high.

The Fire Service and Pollution Incidents

The Agency is working closely with Cumbria Fire Service in providing a first line pollution prevention service at road traffic accidents.

The Fire Service are normally first on the scene at road accidents. This gives them a unique opportunity to deal with polluting spillages before they reach a watercourse. The Fire Brigade have agreed to undertake this role where practicable and the Agency will provide training and materials such as oil absorbents. The Fire Service will also notify the Agency of any potentially polluting spillages so that Agency staff can take necessary action.

Local Agenda 21

This is an initiative which has come out of the Rio Earth Summit of 1992. It is designed to achieve sustainable development at a local level.

The lead in developing local Agenda 21 is taken by Local Authorities. The Local Authorities in Cumbria are developing local Agenda 21 initiatives and meet quarterly to exchange ideas and information.

This is a developing idea and will take on a greater shape and direction in the coming months.

The Agency also has responsibilities with regard to sustainable development, and joins with the local Authorities at their liaison meetings to assist in pursuing the goal of sustainable development.

A Local Accord on Native Woodlands in the Lake District National Park

In 1993 the Forestry Commission and the National Parks in England and Wales signed a National Accord to promote and encourage the management and extension of native woodlands in National Parks.

The accord acknowledges the importance of native woods in National Parks and aims to promote the well being of existing woods and the creation of new native woodland areas.

This local agreement affirms the determination of local partners to achieve these ends in the Lake District National Park. The Agency is a signatory to this agreement along with the Lake District National Park Authority, Forestry Authority, Forest Enterprise, English Nature, the Ministry of Agriculture Fisheries and Food, the National Trust and North West Water Ltd.

The Morecambe Bay Partnership

This is intended to be the foundation of a partnership between the users and regulators of Morecambe Bay that will build

understanding of the Bay and encourage wide participation in its future management. The aim is to build an economically prosperous and environmentally sustainable future for the communities and the natural and man made features which make the Bay distinctive.

A strategy has been prepared by Local Authorities and English Nature working with local people and organisations in accordance with Government guidance. The Agency has been closely involved in drawing up the strategy and will be heavily involved in implementing many of the proposals in collaboration with others.

The Duddon Estuary Partnership

This is a similar partnership approach to the Morecambe Bay Strategy, but aimed at the Duddon Estuary. The Agency has similar level of involvement.

Annual Winderclean

Lake Windermere attracts large numbers of visitors both to the shoreline and onto the water itself. This has resulted in substantial problems of littering. In an attempt to clear the litter, and prevent future littering, the Agency, South Lakeland District Council and the Lake District National Park have created the Winderclean partnership.

The clean up involves the use of divers and other volunteers to clear rubbish from the lakeshore and the lake itself. A recycling facility has also been opened on the lakeshore to help prevent littering. Other waste minimisation and pollution prevention initiatives are under consideration.

Annual Conservation and Fisheries Liaison Meetings

Staff from the Agency meet annually with local representatives of conservation organisations at a round table meeting. The purpose is to discuss the Agency's annual flood defence maintenance programme and other relevant conservation related issues.
The other organisations represented include the Lake District National Park, English Nature, Cumbria Wildlife Trust and the Royal Society for the Protection of Birds.

The Agency also has an annual meeting with the National Trust with a view to working together on matters of mutual interest.

The Agency also hosts an annual meeting with representatives of the local Fisheries Consultative organisations and organises occasional Public Fisheries Seminer.

Site Emergency Plans

As part of the County Councils emergency planning procedures, certain industrial sites have specific emergency plans. Within the LEAP are Glaxo Wellcome at Ulverston, British Gas at Barrow, Vickers Shipbuilding and Engineering Ltd and Laporte Chemicals have such plans. The Agency is involved in these plans to deal with any potential pollution problems which may arise. Exercises designed to test and improve procedures are held regularly, and include staff from the Agency.

6 Future Review and Monitoring

The Agency will be jointly responsible, with other identified organisations and individuals, for implementing this Action Plan. Progress will be monitored and reported annually by the Agency to all key partners and other interested parties.

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 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.
- Roll forward the detailed activity plans.

Appendix 1: List of Respondents to the Consultation Report

NAME	ORGANISATION
Dr Harvey Wood	The Clean Rivers Trust
Karl Evans	British Trust for Ornithology
Ken Mason	Newton Rigg College
Chris Christie	Askam and Ireleth Parish Council
Mr C.R. Pudsey	
Mr V.P.W. Lowe	Leven Angling Association/Grange and District Wild Fowlers
B.K. Jones	Ramblers Association
Ms D Binch	
Peter Ashby	
David Knight	Milnthorpe Angling Association
Mrs S.E. Simm	Local Council of Millom without
David Harpley	Cumbria Wildlife Trust
Amanda Tyson	Countryside Commission
Ian Brodie	Friends of the Lake District
J.C. Brown	Forestry Authority
Richard Bramwell	North West Mills Group
H.F. Thomson	Dalton with Newton Town Council
Stewart Allen	Grange and District Natural History Soc
Guy Richardson	Cumbria County Council
John Poole	Hawkshead Parish Council
Nigel Gilligan	Furness Friends of the Earth
Mike Murray	Ministry of Agriculture Fisheries and Food
Michael Payne	The Inland Waterways Association
Eric Harper	North West Water
Alistair Crowle	RSPB
Kim Wisdom	Lancashire Wildlife Trust
F. Brooks	Town Council of Grange-over-Sands
B.G. Whittaker	Windermere Parish Council
Peter Walsh	
Dr Jim Andrews	North Western and North Wales Sea Fisheries Committee

Mrs F.A. Thompson	Blawith and Subberthwaite Parish Council
Kathleen Atkinson	Environment Agency committee member
Fred French	Furness and South Cumbria Fisheries Consultative Association
Steven Donnelly	Askam and Ireleth Parish Council
Robin Martakies	Lakes Parish Council
Jeff Carroll	Coniston and Torver District Angling Association
Mrs I Jewell	Lowick Parish Council
Fraser Rae	South Lakeland District Council
Veronica Pitts	National Farmers Union
Mrs M. Yates	British Waterways
Colin Phillips	Barrow Borough Council
Philip Taylor	Lake District National Park Authority
Diana Holmes	South Lakeland District Council
Carol Hayton	Holme Parish Council
Mr N.E. Joyce	Kirkby Ireleth Parish Council
Mrs C. Siddle	Egton with Newland Parish Council
Mr Oliver Barratt	
Mr W.W. Wilson	Lowwood Products Ltd

Appendix 2: Summary of comments on issues contained in the consultation report

Issue numbers follow the numbering system used in the consultation report.

Issue 1 - Drainage problems at Grange-over-Sands

7 consultees commented on this issue.

There was considerable concern from the local community about this problem. Local opinion seems to be that the Spartina grass and Winster outfall are significant causes of this problem. Options 1 attracted most support.

Issue 2 - Flooding problems

10 consultees commented on this issue.

Option 1 attracted most support. Several consultees stressed the need to ensure conservation/recreation are fully considered in all flood defence works.

Issue 3 - Coastal area at risk of flooding

5 consultees commented on this issue.

All favoured option 2.

Issue 4 - Impact on groundwater from potential saline intrusion

7 consultees commented on this issue.

Wide support for options 1 and 2. Barrow Borough Council will explore the possibility of including a policy in their local plan review to draw developers' attention to this issue.

Issue 5 - Lack of accurate flow data on the River Kent at Burneside

3 consultees commented on this issue.

All support option 1.

Issue 6 -Environmental Impact of old landfill sites

8 consultees commented.

Wide support for option 1, with several parties requesting involvement in this work.

Issue 7 - Poor trout production in some parts of the River Bela

7 consultees commented.

Considerable support for an investigation and follow-up action.

Issue 8 - Need for a better strategic response to the drought

8 consultees commented.

Wide and strong support for this project. Some consultees expressed a desire for the Agency to take a tougher line with North West Water.

Issue 9 - Impact of effluent discharges on the Leven Estuary

9 consultees commented.

Strong support for the investigation and a desire to see strong follow-up action.

Issue 10 - Impact of discharges on Cavendish Dock

5 consultees commented.

Strong support for options 1 and 3 and some support for option 2 if done with care.

Issue 11 - Eutrophication in Elterwater

9 consultees commented.

Some opposition to option 1, but support for options 2 and 3. Several consultees asked for phosphate removal at Langdale STW.

Issue 12 - Eutrophication in Esthwaite

8 consultees commented.

Wide support for all options. Widespread concern that this issue should be resolved.

Issue 13 - Eutrophication in Grasmere

9 consultees commented.

Option 1 attracted most support, but all options attracted some support.

Issue 14 - Potential flood risk at Haverigg

4 consultees commented. Option 2 attracted two supporters and option 1 one.

Issue 15 - Impact of abstraction on the River Leven Fishery

7 consultees commented.

The installation of screens (options 1 and 2) attracted almost unanimous support.

Issue 16 - Impact of discharges from combined sewerage systems

7 consultees commented.

Unanimous support for improvements suggested.

Issue 17 - Copper enrichment and algal blooms in Coniston

7 consultees commented.

Almost unanimous support for further research.

Issue 18 - Premature storm discharges at sewage works

7 consultees commented.

Unanimous support for action to resolve these problems.

Issue 19 - Inadequate sewage treatment

12 consultees commented.

Widespread support for all actions to improve sewage treatment at all the sites listed. Parish councils and local individuals expressed a desire for schemes in their particular area to be given priority. There was particularly strong local concern about discharges to the Duddon Estuary.

Issue 20 - Lack of rural sewerage

10 consultees commented.

Widespread support for all actions to reduce pollution. Parish councils and others expressed a desire for areas under their jurisdiction to be improved.

Issue 21 - Impact of industrial discharges on Scarth Hole

5 consultees commented.

Most opinions favoured option 1 with options 3 and 4 also attracting support. There was some opposition to option 2.

Issue 22 - Failure to meet water quality objectives

6 consultees commented.

Widespread support for investigation and appropriate follow-up actions.

Issue 23 - River Specific Issues

7 consultees commented.

Widespread support for actions to resolve these problems. General preference for options 2 and 3 foam on the River Kent.

Issue 24 - Failure to meet EC Bathing Water Directive Standard

9 consultees commented.

Widespread support for both options. There is clearly considerable concern to ensure bathing water quality is further improved, with several parties wishing to be kept informed of progress.

Appendix 3: Errata from the Consultation Report

1. Map 5 - There was a error in the key regarding the boundary of the Arnside and Silverdale AONB.

2. Appendix 1 Scheduled Ancient Monument - We omitted scheduled Ancient Monuments in the part of the LEAP in Lancashire.

3. Map 16 - Some of the population equivalents given for NWW sewage treatment works were incorrect.

4. Page 102 Section 2-2-4 subsection 5. Second sentence incorrect:- "the requirement for secondary treatment for all discharges serving population equivalents greater than 2000 by the year 2005" (not the year 2000 as per the consultation report).

5. We omitted to show Lancaster Canal on the Water Quality maps.

6. Map 4 - Cavendish Dock and Hodbarrow SSSI's were not shown.

Glossary of Terms and Abbreviations

Abstraction
Removal of water from surface or groundwater.

Algae
Simple plants lacking true stems. In freshwater they are generally free floating and microscopic.

Algal bloom
A super abundance of algae in a particular location.

Aquifer
A layer of underground porous rock which contains water and allows water to flow through it.

Eutrophication
Enrichment of water by nutrients - usually phosphorous and or nitrogen.

Groundwater
Water lying under the surface of the ground, excluding underground streams.

Invertebrate
Animal without a backbone eg. insects.

Kelts
A salmonid fish which has spawned.

Landfill
The deposit of waste onto or into land, which can then be restored to some other use.

Main River
Some watercourses are designated main river. Main river status must first be approved by MAFF. The Environment Agency has powers to carry out works to improve drainage or protect land and property against flooding on watercourses designated as main river.

RAMSAR
Wetland sites of international importance for conservation.

Redd
Hollow created in a river bed gravel by spawning salmonid fish into which the female deposits ova.

RSPB
Royal Society for Protection of Birds

Salmonid
Fish classified as belonging to the Salmon family such as salmon, trout and charr.

Sewage Treatment Works (STW)
Site where sewage is treated to varying degrees before being discharged to the environment.

Sewerage
A system of sewers usually used to transport sewage to a sewage treatment works.

Smolts
Young salmonids migrating to sea for the first time.

SSSI
Site of Special Scientific Interest. A site designated by English Nature for conservation purposes by virtue of its outstanding ecological or geological interest.

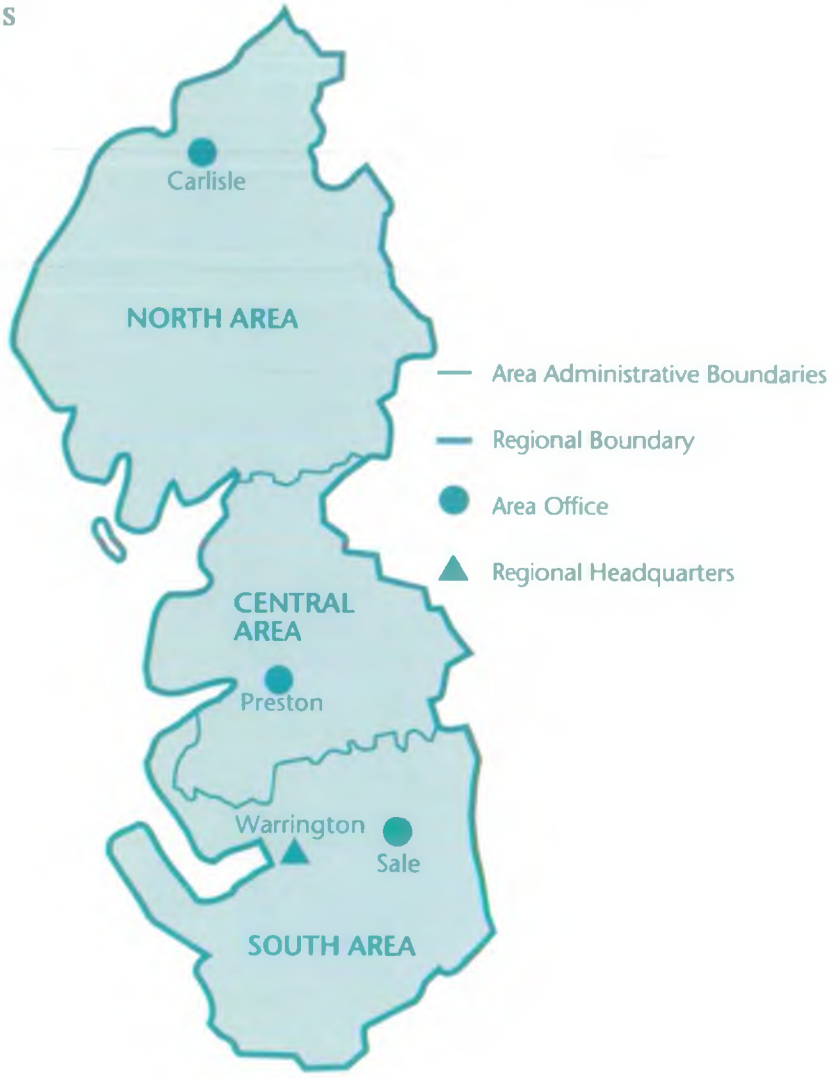
NORTH WEST REGION ADDRESSES

REGIONAL OFFICE
Environment Agency
PO Box 12
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

NORTH AREA
Environment Agency
Chertsey Hill
London Road
Carlisle CA1 2QX
Tel: 01228 25151
Fax: 01228 49734

CENTRAL AREA
Environment Agency
Lutra House
Dodd Way
Walton Summit
Bamber Bridge
Preston PR5 8BX
Tel: 01772 339 882
Fax: 01772 627 730

SOUTH AREA
Environment Agency
Mirwell
Carrington Lane
Sale M33 5NL
Tel: 0161 973 2237
Fax: 0161 973 4601



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ENVIRONMENT AGENCY

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North Area Office
Chertsey Hill
London Road
Carlisle
CA1 2QX