

# local environment agency plan

## ESK AND COAST (HARTLEPOOL TO FILEY BAY)

CONSULTATION REPORT

NOVEMBER 1997



ENVIRONMENT  
AGENCY

## YOUR VIEWS

The Esk and Coast (Hartlepool to Filey Bay) Local Environment Agency Plan Consultation Report is the Environment Agency's initial analysis of the status of the environment in this area and the issues that we believe need to be addressed.

We would like to hear your views:

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

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

The Esk and Coast (Hartlepool to Filey Bay) Environment Planner  
The Environment Agency  
North East Region  
Coverdale House  
Amy Johnson Way  
Clifton Moor  
York  
YO3 4UZ

All comments must be received by 28 February 1998.

All comments received on the Consultation Report will be considered in preparing the next phase of the process, the Action Plan which will focus on updating Section 4 of this Consultation Report by turning the proposals into actions.

Note: Whilst every effort has been made to ensure the accuracy of information in this report it may contain some errors or omissions which we will be pleased to note.

### The Structure of this Consultation Report

This Consultation Report is divided into two parts: Part I and Part II. A brief description of each can be found below:

#### PART I

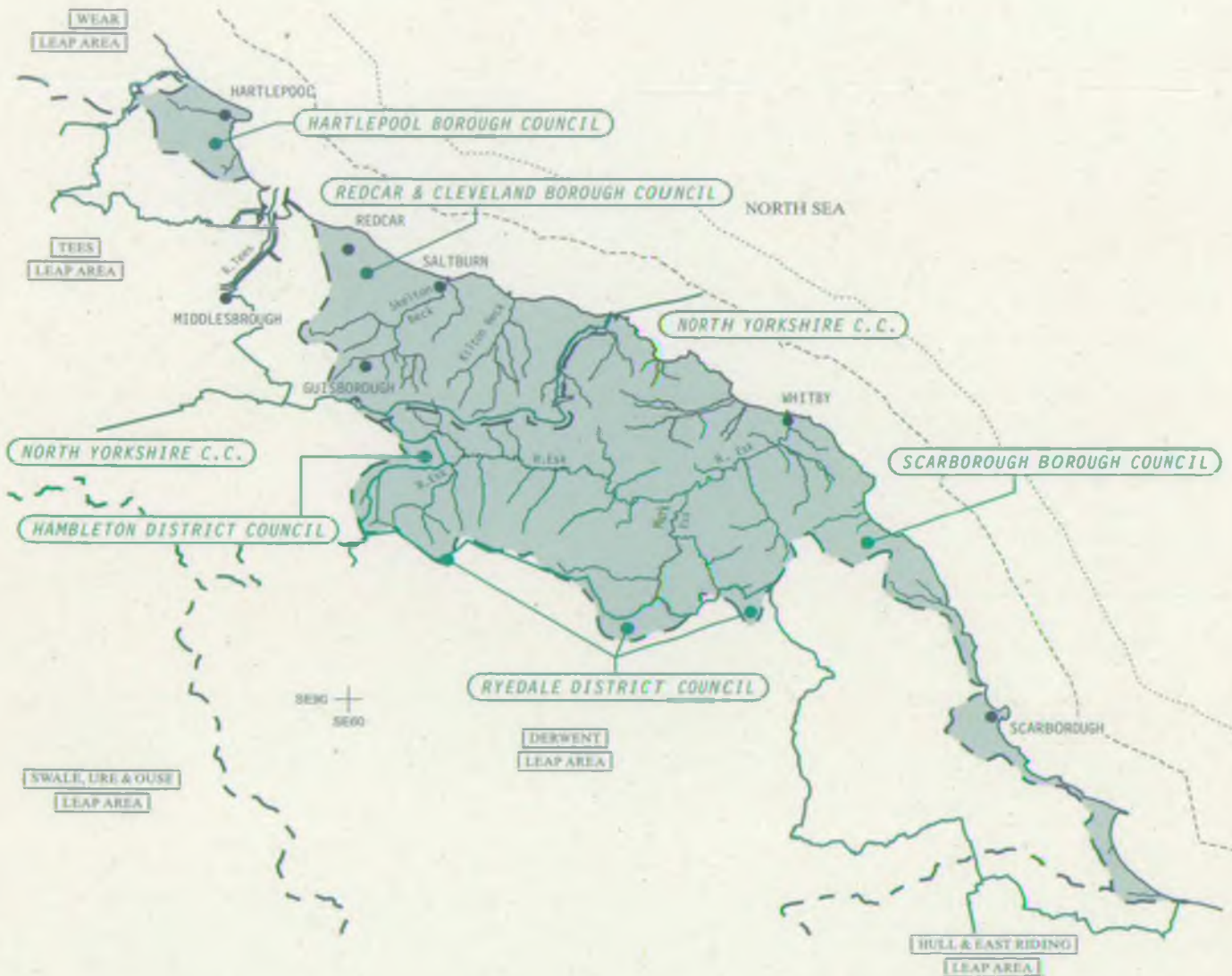
Consists of an introduction to the Agency, an overview of the Esk and Coast (Hartlepool to Filey Bay) area, key partnerships the Environment Agency has with other bodies and proposals we feel will address the important environmental issues in the area.

#### PART II

Detailed consideration is given to the state of the environment of the Esk and Coast (Hartlepool to Filey Bay) area. Supporting information can be found here to help you make an informed decision as to the validity of the issues and proposals in Part I.



# Esk and Coast (Hartlepool to Filey Bay) LEAP Area



- CATCHMENT BOUNDARY
- RIVER
- COASTLINE
- 3 MILE LIMIT
- 6 MILE LIMIT
- TOWN

# key details

## General

Area 751 km<sup>2</sup>

## Administrative Details

County Council	North Yorkshire
Unitary Authorities	Hartlepool Borough Council Redcar & Cleveland Borough Council Tees Valley Joint Strategy Unit
District Councils	Scarborough Borough Council Hambleton District Council Ryedale District Council
Water Companies	Yorkshire Water Services Northumbrian Water Ltd Hartlepool Water Company
Navigation Authorities	Scarborough Harbour Department Whitby Harbour Department Tees & Hartlepool Port Authority

## Area Information : Industry

Total number of IPC Authorisations	2
Number of IPC Sites	2
Total number of Radioactive Substances Authorisations	1
Total number of Radioactive Substances Registrations	8

## Area Information : Waste Arisings

Number of Waste Management Licences	32
Municipal waste arisings	130,000 tonnes pa
Industrial and commercial waste arisings	200,000 tonnes pa

## Area Information : Water Quantity

Total number of Licensed Surface Water Abstractions	99
Total number of Licensed GroundWater Abstractions	22
Total Volume of Authorised Abstractions	15773 tcma
River Flow Measurement	
River Esk at Briggswath	
Mean flow: 4.54 m <sup>3</sup> /s	
Median flow: 2.43 m <sup>3</sup> /s (the river flow is more than this 50% of the time)	
Dry weather flow: 0.60m <sup>3</sup> /s (the river flow is more than this 95% of the time)	

The Briggswath gauge was built in 1992 to improve the accuracy of flow measurement on the lower Esk. Once adequate correlation with the existing measurement station at Sleights Weir has been achieved, the Sleights station will be decommissioned.

## Area Information : Water Quality

Consented Sewage Discharges	54
Major Sewage Outfalls to Sea	7
Consented Industrial Discharges	16

## Area Information : Ecology and Fisheries

Section 30 Consents to Introduce Fish	4 pa
Number of Sites of Special Scientific Interest	28
Local Nature Reserve	1
Heritage Coast	1
National Park	1
National Trust Holdings	24
Yorkshire Wildlife Trust Sites	4
Cleveland Wildlife Trust Sites	6
Sensitive Marine Area	1
Special Protection Area	1

## FOREWORD

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

Local Environment Agency Plans (LEAPs) aim to provide a means for setting priorities, solving problems and protecting the environment in an integrated way. The Esk and Coast (Hartlepool to Filey Bay) LEAP Consultation Report has been drawn up for consultation with those interested in the future of the local environment. It provides a focus for all parties to undertake and achieve environmental improvements in a sustainable manner.

This, and other plans for the constituent areas in the Region, will represent a shared vision for the future, and will play a vital role in the protection of our environment, whilst recognising the ever competing pressures on the environment and the need to balance cost and benefit.



**Roger Hyde**

**Regional General Manager**





## **DRAFT VISION FOR THE ESK AND COAST (HARTLEPOOL TO FILEY BAY) AREA**

The Esk and Coast [(Hartlepool to Filey Bay) hereafter known as the Esk and Coast] area is diverse and provides a range of challenges and opportunities to the Agency and other responsible organisations. The coastline of the plan is of recognised conservation value. Thirty-six miles of the coastline of the plan area has been designated 'Heritage Coast'. The Heritage Coast Project strives to conserve and protect the environment and increase public access to the coast. The moorland landscape of North Yorkshire is afforded similar protection under its designation as a National Park.

The coastal waters are important to the local economy for the fishing industry and as a shipping route. Trade and sewage discharges are consented to enter the coastal waters. The Agency continues to work with industry and the water companies towards improving coastal water quality. Whilst the River Tees is not included in this plan, it should be recognised that the output from the Tees Estuary exerts an influence upon the coastal waters of the Esk and Coast area.

The River Esk is of particular importance as a freshwater fishery. The River Esk Regeneration Project, in which the Agency is a partner, has recently received Objective 5b funding from the European Union to improve the habitat of the river to increase the possibility of a self sustaining salmon population.

There are numerous attractions for visitors in the Esk and Coast area, including the recently revitalised Hartlepool Marina, the rural towns and small coastal villages, the resort of Scarborough and the North York Moors National Park. Tourism is an important part of the economy of the plan area, but it must be well managed in order to protect the areas of greatest environmental sensitivity.

The key Environment Agency aspirations for the Esk and Coast area are to:

- work closely with others to protect and enhance the unique character of the area, supporting, for example, the River Esk Regeneration Project and the Heritage Coast;
- collaborate for the protection of fish stocks and promote fishing as a vital part of the economy;
- continue to work with others to improve water quality and coastal water quality in particular;
- protect and enhance of biodiversity;
- undertake proactive education campaigns in the area, including waste minimisation and pollution prevention for agriculture and industry; and
- protect people and property from flooding where it is economically and environmentally feasible.

Finally, the Agency wishes to strengthen existing and establish new links and partnerships with all those who influence the development of the Esk and Coast area. It is by working together, sharing local expertise and funding, that we shall achieve the sustainable improvements that will ensure environmental protection and provide benefits for the plan area.

## CONTENTS

### PART I

	Page Number
<b>1.0 Introduction</b>	
1.1 The Role of the Environment Agency .....	2
1.2 Local Environment Agency Planning - The Process .....	2
1.3 Sustainable Development and the Environment Agency .....	4
<b>2.0 The Esk and Coast Area</b> .....	6
2.1 Introduction .....	7
2.2 Air .....	9
2.3 Land .....	10
2.4 Water .....	15
2.5 Wildlife and Heritage .....	16
2.6 Key Details .....	20
<b>3.0 Protection Through Partnership</b>	
3.1 Introduction .....	22
3.2 Education .....	22
3.3 Key Partnerships .....	22
<b>4.0 Issues and Proposals</b> .....	27

### PART II

<b>5.0 Uses, Activities and Pressures</b> .....	43
5.1 Economic .....	44
5.2 Waste Management .....	58
5.3 Surface Water and Groundwater Abstraction .....	71
5.4 Flood Storage and Flood Defence .....	74
5.5 Recreation and Amenity .....	81
5.6 Conservation .....	88
<b>6.0 Current Status of the Local Area</b> .....	97
6.1 Introduction .....	98
6.2 Air .....	98
6.3 Waste .....	106
6.4 Water .....	110
6.5 Biodiversity .....	124

### APPENDICES

- A: Environment Agency Aims and Strategies
- B: Chemical Standards for River Ecosystem Classification
- C: European Directives
- D: GQA Classification
- E: Statement of Informal Consultation
- F: Consultation List
- G: Glossary of Terms
- H: Abbreviations

## LIST OF FIGURES

Figure Number	Title	Page Number
1	The Catchment .....	8
2	Topography .....	11
3	Geology .....	12
4	English Nature and Countryside Commission Joint Character Areas .....	14
5	River and Rainfall Gauging Stations .....	17
6	Land Use, Agriculture and Forestry .....	55
7	Waste Management Licences .....	61
8	Sewage and Trade Discharges .....	68
9	Surface and Groundwater Abstractions 1997 .....	72
10	Main River and Flood Risk Areas .....	79
11	Location of Fish Species .....	82
12	Angling Activity .....	83
13	Amenity and Recreation .....	87
14	Nature Conservation .....	91
15	Archaeology and Heritage .....	94
16	GQA Grades - 1996 .....	114
17	Short Term River Quality Objectives .....	115
18	Long Term River Quality Objectives .....	116
19	Biological Water Quality 1995 - 1997 .....	118
20	Flood Defence Indicative Standards of Service .....	123

## LIST OF TABLES

Table Number	Title	Page Number
1	Current Status of Development Plans in the Esk and Coast Area .....	46
2	Ozone Levels .....	100
3	Levels of Nitrogen Dioxide .....	101
4	Levels of VOCs .....	102
5	Levels of Sulphur Dioxide .....	103
6	Levels of Smoke .....	103
7	Summary of biological statistics .....	117
8	Flood Defence Standards of Service .....	124
9	Chemical Standards for Rivers Ecosystem Classification .....	Appendix B
10	GQA Classification .....	Appendix D
11	Breakdown of responses .....	Appendix E
12	Number of Comments Received on Each Issue .....	Appendix E



## PART 1

Part 1 introduces the Agency, examines the Esk and Coast (Hartlepool to Filey Bay) area in terms of its natural and physical features; highlights many of the partnerships which exist to protect our environment; and identifies a number of issues and proposals for action to make a difference to the area.

## **1.0 INTRODUCTION**

### **1.1 THE ROLE OF THE ENVIRONMENT AGENCY**

The Agency for England and Wales was established on 1 April 1996 and aims to provide high quality environmental protection and improvement. Its creation is a major and positive step forward, merging the expertise of the former National Rivers Authority, Her Majesty's Inspectorate of Pollution, Waste Regulation Authorities and certain sections of the former Department of the Environment (DoE) to create a new organisation aiming to take an integrated approach to environmental protection and enhancement. This integrated approach requires an increased level of public participation which will help the Agency, its partners and the community contribute to the world-wide environmental goal of sustainable development.

**The Agency's vision is:**

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

**It will:**

- protect and improve the environment as a whole by effective regulation, by its own actions and by working with and influencing others;
- operate openly and consult widely;
- value its employees; and
- be efficient and businesslike in everything it does.

The aims of the Agency are set out in Appendix A.

### **1.2 LOCAL ENVIRONMENT AGENCY PLANNING - THE PROCESS**

The aim of the Local Environment Agency Planning process is to identify, prioritise and cost environmentally beneficial actions which the Agency and consultees will work together to deliver.

This is achieved by:

- focusing attention on the environment of a specific area;
- involving interested parties in planning for the future of the area;
- establishing an integrated plan of action for managing the local environment over the next five years.

The Agency seeks active input into Local Environment Agency Plans (LEAPs) from organisations or individuals concerned with the environment. The Agency wishes to see the document used to influence and assist in the planning processes of others where their decisions may impact on the management of the environment.

Local Environment Agency Plans are the successors to Catchment Management Plans which were produced by the National Rivers Authority. These Plans do not replace local authority development plans but should be regarded as complementary to them.

The process of Local Environment Agency Planning involves several stages, as outlined below.

### **The Consultation Report**

The Esk and Coast LEAP will form one of a number of plans to be produced by the North East Region of the Agency.

The publication of this Consultation Report marks the start of a three month period of formal consultation enabling external organisations and the general public to work with the Agency in planning the future of the environment in the Esk and Coast area.

The Consultation Report describes the area, reviews the state of the local environment, identifies the environmental issues which need to be addressed, and then makes proposals for action with which to address them.

The purpose of the consultation phase is to:

- establish the current state of the local environment;
- obtain views on the issues facing the environment; and
- begin the process of formulating and implementing an Action Plan (see below).

### **The Action Plan**

The Local Environment Agency Action Plan will include:

- a forward vision for the Esk and Coast area;
- a policy framework based on identified issues for the management of the environment over a five year period; and
- costed action plans to address identified issues.

These elements will be prepared once the period of consultation on this document has been completed and full consideration has been given to the responses received.

The Agency will monitor the implementation of the plan through regular consultation both internally and with committed parties. Although these plans are non-statutory, their aim is to provide a framework for the integrated management of the local environment through the corporate action of the Agency and other bodies.

### **The Annual Review**

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

The review document will contain the following information:

- a detailed comparison of actual against planned progress;
- identification of additional actions to maintain progress in the light of changes in the area; and
- consideration of the need to update the LEAP.

### **1.3 SUSTAINABLE DEVELOPMENT AND THE ENVIRONMENT AGENCY**

Environmental sustainability can be described as *"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."* This requires a full consideration of environmental, social and economic issues during the decision-making process. This approach was emphasised by the Rio Earth Summit, the European Union and the UK government.

At the 1992 Rio Earth Summit (United Nations Conference on Environment and Development), the UK signed up to Agenda 21 and later published "Sustainable Development; the UK Strategy" and "Biodiversity - the UK Action Plan" (DoE 1994). The Government objective of securing sustainable development has been reinforced by the Environment Act 1995 and various planning policy guidance notes, for example PPG 12 "Development Plans and Regional Guidance" (DoE, 1992) which states that;

*"Sustainable development does not mean having less economic development: on the contrary, a healthy economy is better able to generate the resources to meet people's needs, and investment and environmental improvement often go hand in hand. Nor does it mean that every aspect of the present environment should be preserved at all costs. What it requires is that decisions throughout society are taken with proper regard to their environmental impact."*

The Agency works towards sustainable development through seven objectives set by Government Ministers:

- an integrated approach to environmental protection and enhancement, taking into account the impact of all activities and the availability of natural resources;
- delivery of environmental goals without imposing disproportionate costs on industry or society as a whole;
- clear and effective procedures for serving its customers, including the



- development of single points of contact within the Agency;
- high professional standards, using the best possible information and analytical methods;
- organisation of its own activities to reflect good environmental and management practice, and provision of value for money for those who pay its charges, as well as for taxpayers as a whole;
- provision of clear and readily available advice and information on its work; and
- developing a close and responsive relationship with the public, including local authorities, other representatives of local communities and regulated organisations.

### **What Does Sustainable Development Mean for the Agency?**

In line with the above, the Agency will include assessments of environmental impacts in its decision making, at both policy and operational levels. This does happen, and will continue to happen, in the Agency but there are areas that need to be developed.

Due to the way in which the environment is shared, collective action is necessary. The Agency will use the following guidelines whilst seeking to implement the principles of sustainable development:

- decisions are to be based on the best possible scientific information;
- where there is uncertainty and where potentially serious risks exist, precautionary action will be necessary;
- ecological impacts must be considered, particularly where resources are non-renewable or effects may be irreversible; and
- all environmental protection costs should be borne by the operator responsible - the "polluter pays" principle.

Whilst exercising its duties, the Agency will have to make judgements about the weight to be put on these principles in particular cases. Sometimes environmental impacts have to be accepted as the price of economic development but, on other occasions, a site, an ecosystem or some other aspect of the environment has to be regarded as so valuable that it should be protected from exploitation. See 3.3.

**2.0 THE ESK AND COAST AREA**

This Section gives an overview of the local area and highlights some of its key features.

	<b>Page Number</b>
<b>2.1 INTRODUCTION</b> .....	7
<b>2.2 AIR</b> .....	9
<b>2.3 LAND</b> .....	10
<b>2.3.1 TOPOGRAPHY</b> .....	10
<b>2.3.2 GEOLOGY</b> .....	10
<b>2.3.3 LAND USE AND FORESTRY</b> .....	10
<b>2.3.4 WASTE</b> .....	13
<b>2.4 WATER</b> .....	15
<b>2.4.1 RIVER ESK AND COASTAL WATERS</b> .....	15
<b>2.4.2 HYDROGEOLOGY</b> .....	15
<b>2.4.3 RAINFALL AND RIVER FLOW MONITORING</b> .....	16
<b>2.5 WILDLIFE AND HERITAGE</b> .....	16
<b>2.5.1 CONSERVATION</b> .....	16
<b>2.5.2 FISHERIES</b> .....	18
<b>2.5.3 HERITAGE</b> .....	19
<b>2.6 KEY DETAILS</b> .....	20

## **2.0 THE ESK AND COAST AREA**

### **2.1 INTRODUCTION**

The River Esk rises on the moorlands of the North York Moors National Park. It is unique in that it is the only major river in Yorkshire that drains directly into the North Sea. All the other major rivers in Yorkshire reach the North Sea via the Humber Estuary.

The source of the Esk is in Westerdale at an altitude of between 300m and 400m above sea level (AOD) where a series of becks known as the Esklets merge to form the River Esk. Downstream of Park Nook, the river is classified as 'Main River', (see Appendix G) and below Ruswarp Weir it is tidal for a distance of 5km, to its mouth at Whitby. The total distance travelled by the River, from source to mouth, is approximately 42km. Above Ruswarp weir, the Esk drains a catchment of approximately 362km<sup>2</sup>. The three major tributaries of the Esk are Sleddale and Baysdale Becks and the Murk Esk. In addition, the Esk is supported by a number of minor tributaries.

The coastal stretch covered by the plan extends from Bempton, North of Flamborough Head, to the boundary with the Wear catchment, just North of Hartlepool. It is approximately 111km long. Along its length, there are several becks draining directly into the North Sea but only Skelton Beck is classified as 'Main River' (see Appendix G). It flows into the North Sea at Saltburn-by-the-Sea. (Scalby Beck flows into the North Sea to the North of Scarborough, is also classed as main river, but this falls into the Derwent LEAP catchment.)

The water catchment forms the boundary of the Plan for all functions of the Agency other than waste regulation which is based on local authority boundaries. The main centres of population within the Plan area are along the coastal stretch and include Hartlepool, Redcar, Scarborough, Whitby and Filey.

The area is served by several major road links including the A171, A1085, A174 and the A170.

The Plan which covers an area of approximately 751km<sup>2</sup> includes, in whole or in part, two unitary authorities (which are also part of the Tees Valley Joint Strategy Unit), one county council, three district councils and the North York Moors National Park Authority.

A brief description of each local government unit is given below.

#### **The County of North Yorkshire**

Three districts within the North Yorkshire County Council area are included, in whole or in part, in the Plan: Hambleton, Ryedale and Scarborough. Much of this area is rural/agricultural and is characterised by a dispersed settlement pattern of market towns,



Figure 1



villages and hamlets. There are also a number of important seaside resorts on the coastal strip which are more densely populated and dominated by tourism, in particular Scarborough, Filey and Whitby.

### **North York Moors National Park Authority**

Almost all of the River Esk catchment and much of the North Yorkshire part of this plan falls within the North York Moors National Park. On 1 April 1997, under the Environment Act 1995, the National Parks in England and Wales assumed the role of a Local Planning Authority (LPA) as defined by the various Town and Country Planning Acts. The Park as a whole, covers an area of 1436km<sup>2</sup> and has a population of around 25,000 permanent residents, although it receives millions of day visitors per year in addition to this. Despite fluctuations in the numbers of visitors to the Park, the overall trend is one of steady increase.

### **Tees Valley Joint Strategy Unit**

Parts of the Hartlepool and Redcar and Cleveland Unitary Authorities are included in the plan area. These authorities became part of the Tees Valley Joint Strategy Unit on 1 April 1996, which was established to provide a strategic framework for the five unitary authorities within its area. The areas of the Tees Valley Joint Strategy Unit which fall into the plan are predominantly industrial.

## **2.2 AIR**

### **2.2.1 AIR QUALITY**

Due to the rural nature of the plan area, the air quality in the catchment is affected by road traffic (exacerbated by tourists), domestic fuel burning, smaller scale industries (regulated by the local authorities and not the Agency) and agricultural activities.

In the North of the plan area, however, the highly industrialised area of Teesside has a greater impact on air quality. The 1995 Teesside Environmental Epidemiology Study stated that monitored levels of the majority of air pollutants were comparable with other urban areas.

Air pollution has no boundaries, sulphur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) released from power stations in North Yorkshire have an impact on the air quality in the area, similarly for ozone concentrations. The "precursors" of ozone (volatile hydrocarbons and oxides of nitrogen) tend to be generated in urban or heavily industrialised areas. However, it is well known for ozone levels to be high in rural areas since, by the time ozone is formed from the "precursors", the gases have moved on from the areas in which they were generated. A local air monitoring station (located in the Derwent LEAP) at High Muffles (Cropton Forest) has occasionally measured high levels of ozone. This station is part of the UK National Network of monitoring stations.

The Environment Act 1995 requires the Government to publish an Air Quality Strategy which is currently at the consultation stage. The Act also imposes a duty on local authorities to achieve these standards by 2005 and to review present and future air quality against the standards and objectives contained within the strategy. The Agency will work with the local authorities in whatever capacity it can to help them achieve the required standards. See 5.1.2, 5.1.4 & 6.2.1.

## **2.3 LAND**

### **2.3.1 TOPOGRAPHY**

Some of the Esk catchment is formed by steep valley sides and moorland hills with a maximum height of 433m AOD at Stoney Ridge on Stockdale Moor. Expansive sweeps of unenclosed moorland dominate the plateau and hill tops.

The coastline of the catchment stretches from Hartlepool to Filey Bay. Around the Tees Estuary, the coastal belt is low and flat but, to the South, it rapidly changes to high irregular cliffs and valleys. At 209m AOD, Boulby Head at Staithes is the highest cliff in the plan area. Further South, the cliffs decrease in height and the coast is indented by several small dykes and bays (see Figure 2).

### **2.3.2 GEOLOGY**

The geology of the Esk and Coast catchment become younger in age further south. The oldest rocks located around Hartlepool are the Upper Magnesian Limestone and are Permian in age. The Magnesian Limestone is in turn overlain by the Sherwood Sandstone and Mercia Mudstone which extends southwards to the north of Redcar, where rocks deposited during the Jurassic period outcrop.

The Jurassic rocks dominate the geology of the plan. The oldest part of this sequence is a series of dark grey shales known as the Lias. These are exposed along the coast and contain occasional bands of Ironstone, and fossils, particularly ammonites. This makes certain coastal sections popular venues for fossil hunters.

The Ravenscar Group, overlying the Lias, forms the North York Moors and produces the acidic soils and characteristic moorland scenery of the area. The formation consists of a series of interbedded shales and sandstone and limestone horizons, the latter varying in thickness throughout the catchment. South-west of Scarborough, the Jurassic Sandstones are overlain in turn by Corallian Limestones and Kimmeridge Clay for the remainder of the coastal stretch.

### **2.3.3 LAND USE AND FORESTRY**

Land use can be defined as the use and management of land for development, waste disposal, agriculture and forestry. In the plan area, pastoral farmland in the Yorkshire

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP TOPOGRAPHY

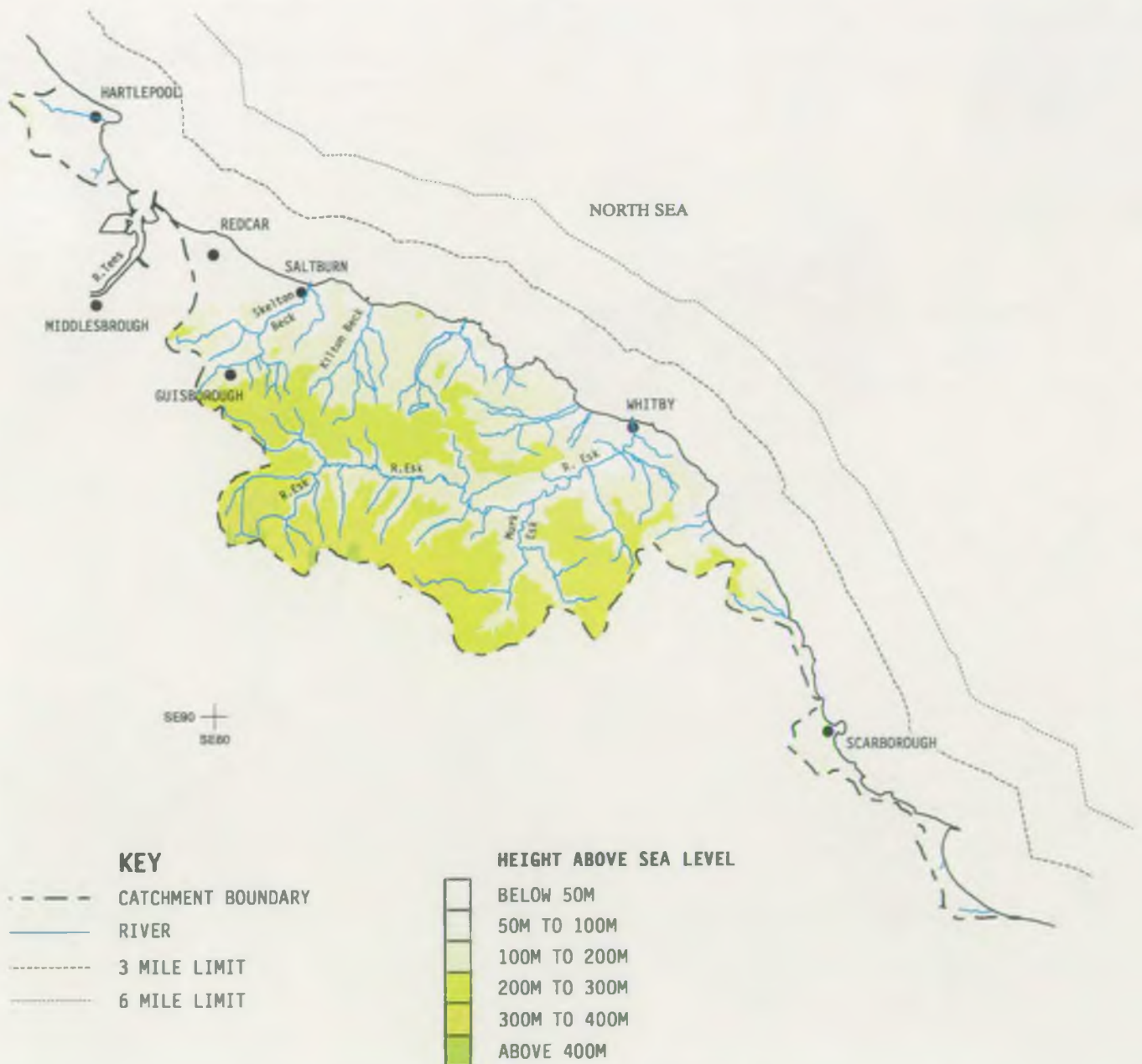


Figure 2

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP GEOLOGY

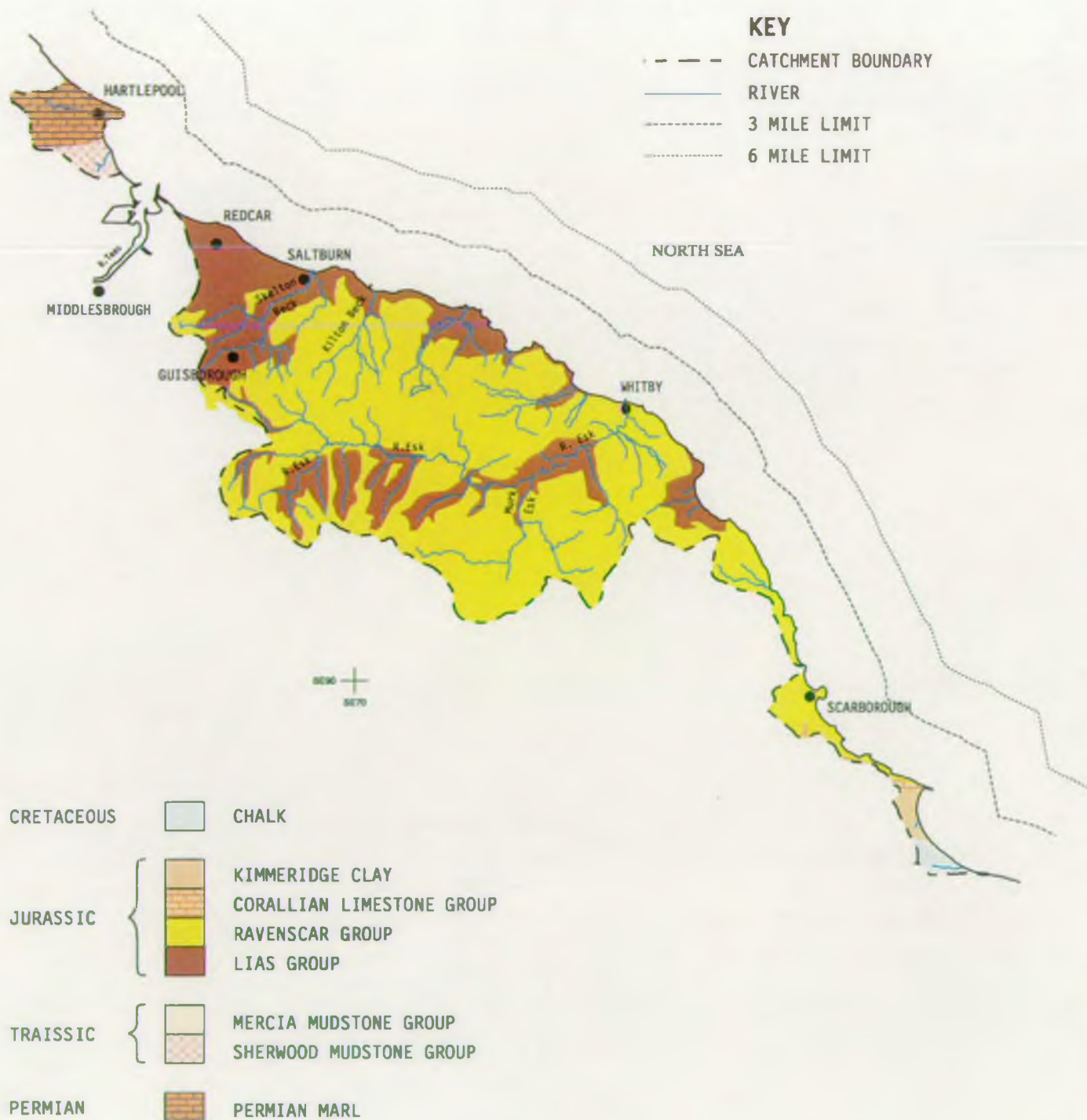


Figure 3



moors and lower fringe is enclosed by both stone walls and hedgerows. The low lying plain around the Tees Estuary is predominated by industry but is surrounded in the North and South by valuable agricultural land.

Extensive areas of conifer plantations, established in the last half century on the moorland and valley sides, have greatly altered the character of the area. Small scattered blocks of predominantly ancient woodland occur on the valley sides, escarpments and fringing hills which are both visually important and valuable for biodiversity. See 5.1.5 & Figure 6.

English Nature and the Countryside Commission, with assistance from English Heritage, have produced a map of England depicting the natural and cultural dimensions of the landscape: "The character of England; landscape, wildlife and natural features".

Formal descriptions of the characterised areas accompanying the map will provide a more detailed summary of the above information, and are expected to be produced early in 1998. The Agency looks to use this information to assist conservation issues within the LEAP process. See 5.6 & Figure 4.

#### 2.3.4 WASTE

The bulk of the waste arisings in the catchment are municipal wastes. In the Northern section of the area which falls within the former county of Cleveland, municipal and some industrial wastes are disposed of at a modern incinerator plant situated just outside of the catchment. This is a waste to energy plant, designed to operate to current emission standards, which feeds electricity back into the National Grid. The plant is operated by Cleveland Waste Management, the Local Authority Waste Disposal Company (LAWDC) for the Cleveland area. Residue from the incineration process is disposed of to landfill in the catchment. In the South of the area, the section falling within North Yorkshire County Council (NYCC), municipal and some industrial wastes are disposed of at the Mickleby Landfill site operated by YorWaste, the LAWDC for the NYCC area.

Other industrial wastes are disposed of at the two LAWDC sites and two commercially operated landfills. In addition, there are two "in-house" facilities which handle wastes arising from the steel industry. Arisings of liquid effluent are spread to land at various more rural locations.

The pattern of production of household, commercial and industrial waste essentially follows the population distribution and the parallel industrial base. The per capita household waste appears to correspond to the National average at approximately 500 tonnes per annum.

The area has three household waste reception facilities with subsequent disposal to landfill or incineration and these are supported by approximately 20 small recycling centres. See 5.2 & 6.3.1.

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP ENGLISH NATURE AND COUNTRYSIDE COMMISSION JOINT CHARACTER AREAS



Figure 4

## **2.4 WATER**

### **2.4.1 THE RIVER ESK AND THE COASTAL WATERS**

Water quality in the River Esk and its tributaries is generally very good, supporting good salmonoid fisheries, and is suitable for drinking water abstraction. The headwaters of both the River Esk and its tributaries suffer from natural acidification due to the acid nature of rainfall in the locality, and run-off from the peat moorland. This results in poor invertebrate and fish populations in the upper reaches. However this acidification is naturally buffered relatively rapidly.

South of the River Esk, just one significant stream system discharges direct to the North Sea, Kings Beck at Robin Hood's Bay. North of the River Esk, a further three stream systems discharge to the sea. Staithes Beck enters the sea at Staithes and Kilton Beck, which is noted for its red appearance in its lower reaches, discharges to the sea at Skinningrove. This colouration is due to the minewater inputs from the long abandoned Loftus and Liverton mines. Finally Skelton Beck enters the sea at Saltburn-by-the-Sea and is the only coastal stream in the plan area classified as 'main river' see Appendix G.

The River Tees dissects the Esk and Coast Plan area and its area falls into a separate LEAP area, the Tees LEAP. Reference to the impact of the Tees Estuary on the coastal waters of the Esk and Coast will be made. Scalby Beck enters the North Sea near Scarborough. However it is not included in the plan area as the beck is linked to the River Derwent catchment and is therefore included in the Derwent LEAP.

The coastal stretch extends from Bempton, north of Flamborough Head, to the boundary of the Wear Catchment, and includes 19 designated Bathing Waters [EC Bathing Water Directive (76/160/EEC)], nine sewage outfalls and three major trade effluent discharges.

### **2.4.2 HYDROGEOLOGY**

Within the Jurassic rocks of the Esk Valley, the sandstone and limestone bands form minor aquifers. These hold and transmit the majority of the groundwater in the catchment and provide springs on hillsides where the horizons outcrop.

The majority of the springs, which significantly contribute to surface water flow on the Moors, arise in association with the two major outcrops of limestone, on Egton High Moor and the Wheeldale Moors. In the plan area, springs are the major source of water supply, both public and private. Around Scarborough, the Corallian aquifer is present and used extensively for public water supply.

The Magnesian Limestone around Hartlepool acts as an aquifer and is utilised to supply drinking water for the area (see Figure 2).



### **2.4.3 RAINFALL AND RIVER FLOW MONITORING**

The Agency, as part of its regional rainfall monitoring network, manages 11 manually-read rain gauges in the catchment. These enable the Agency to monitor and calculate long term variations in rainfall. Three of the monitoring sites are automatic rain gauges linked to the Regional Telemetry System (RTS) which is used for flood forecasting and warning. The annual rainfall in the plan area ranges from 950mm inland to 650mm near the coast.

A river flow gauging station located at Briggswath on the River Esk provides information on river flows and levels and the data is used to produce flow statistics on both an annual and a long term timescale. The flow gauging station is incorporated into the RTS and is used to gather and monitor real-time information. The Briggswath gauge was built in 1992 to improve the accuracy of flow measurement on the lower Esk. Once adequate correlation with the existing measurement station at Sleights Weir has been achieved, the Sleights station will be decommissioned.

Flows, as measured at Sleights Weir, are below 5 cubic metres per second (cumecs) for 75% of the time, below 2 cumecs for 45% of the time, and below 1 cumec 20% of the time. The maximum recorded flow measured in March 1979 was 358 cumecs. There are no major abstractions or discharges in the upper or middle reaches of the River Esk, making it quite a natural catchment. The nature of the soils in the catchment encourages the rapid runoff of rainfall into watercourses (see Figure 5).

## **2.5 WILDLIFE AND HERITAGE**

### **2.5.1 CONSERVATION**

There are many sites within the plan area that are important for nature conservation. The whole of the Esk catchment and much of the coastal area lies within the North York Moors National Park and consequently sites of good conservation interest are relatively well protected from future development. There are 28 Sites of Special Scientific Interest (SSSIs) within the catchment, most of these related to the coast.

A 36 mile stretch of this coastline between Saltburn-by-the-Sea and Scalby, with the exception of 2 small areas at Skinningrove and Whitby, has been defined as Heritage Coast by the Countryside Commission and associated LPAs. Part of this length, between Maw Wyke Hole and Beast Cliff which includes Robin Hood's Bay, has been designated by English Nature as a Sensitive Marine Area (SMA) by English Nature.

The River Esk is the principal salmon and sea trout river in Yorkshire and also supports species identified as "Nationally threatened" such as otters and water voles. Many of the coastal streams are of exceptional conservation value lying within steep-sided valleys which are cloaked by ancient broadleaved woodland which supports a semi-natural flora and fauna.



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP RIVER AND RAINFALL GAUGING STATIONS

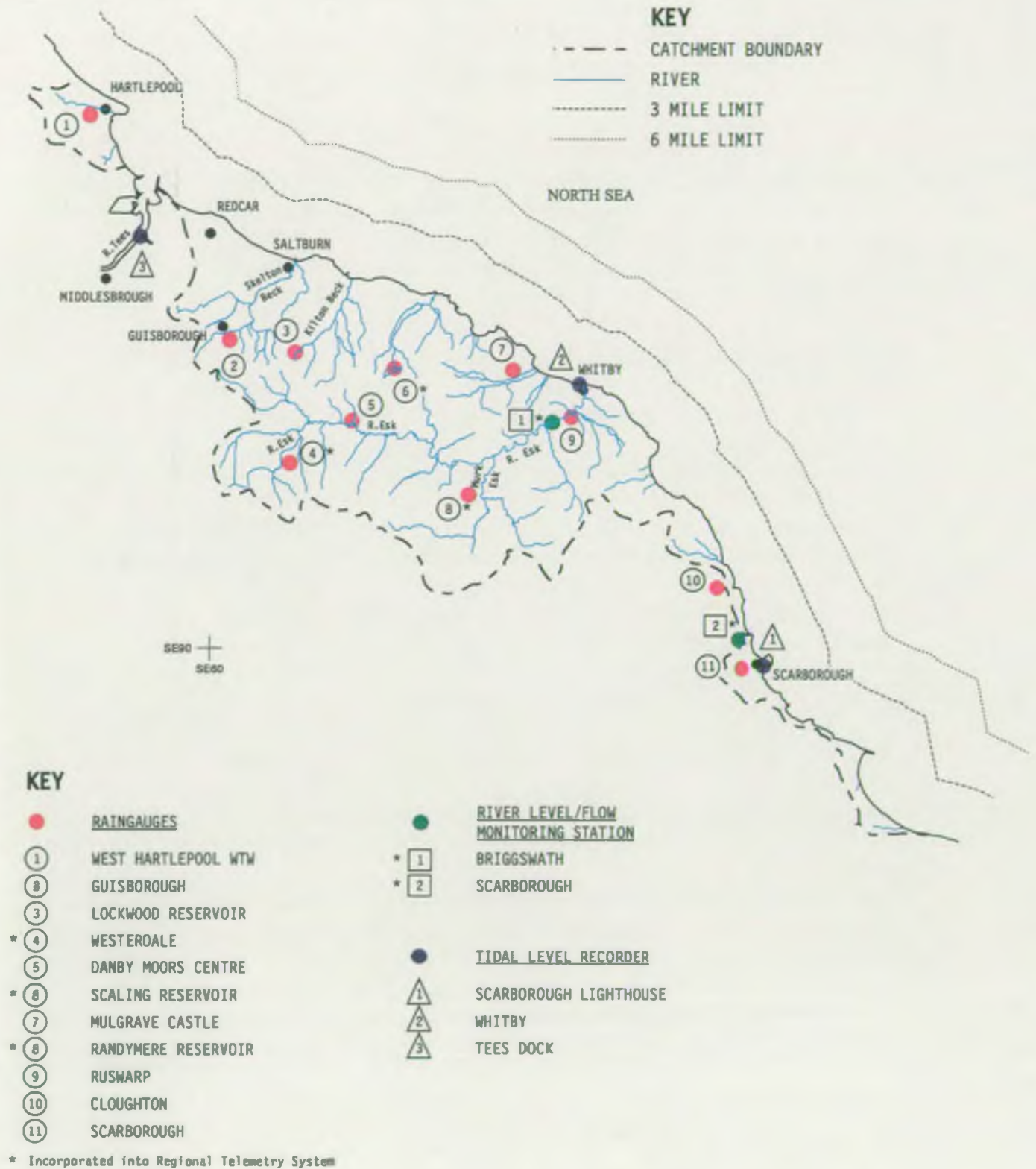


Figure 5

The coast in the North East of England is of exceptional conservation value for sea birds and the Teesmouth area, covered by the Tees LEAP, has been designated as both a Special Protection Area (SPA) under the EC Wild Birds Directive (See Appendix C) and as a Ramsar site under international convention. Flamborough and Bempton Cliffs area located immediately to the South of this coastal stretch has been designated as a SPA and the birds from these colonies feed along the whole length of coast and out to sea.

A large number of internationally important bird species use the coast for breeding, such as guillemots, razorbills and gannets. As well as breeding species, rare and migrant birds may be found all along the coast utilising a range of habitats including scrub, woodland, rough grassland, dunes, arable stubble, etc. These habitats are particularly important because they provide shelter, food and resting places for such birds.

## 2.5.2 FISHERIES

The fishery of the River Esk is dominated by salmonids, both migratory and non migratory. Historically, the Esk has been known as a sea trout river, with small numbers of salmon entering the catchment each year. The tributaries provide an abundance of suitable spawning areas for both native brown trout and sea trout, whereas salmon spawning is restricted to certain reaches of the River Esk. Salmon fry and parr, a proportion of which were micro-tagged, have been stocked by the Agency into the Esk and its tributaries. Any future stocking will be restricted to introductions from private clubs, subject to Section 30 consents being granted by the Agency, see Appendix G.

Good stocks of native brown trout are present in the River Esk and most of its tributaries, and these are supplemented in the Danby and Lealholm areas by hatchery-reared fish for angling purposes. Periodic poor water quality in the headwaters of some tributaries, due to acid runoff, limits the extent of trout recruitment.

Grayling can be found in small numbers in the Egton and Grosmont areas and eels are present to varying degrees of abundance as far up-river as Westerdale. Minnow, stone loach and three-spined sticklebacks are widespread throughout the catchment, with bullheads notably absent.

All the coastal streams support brown trout populations of varying size, with sea trout also present in Kilton, Easington, Mickleby, East Row and Stoupe Becks. Obstructions, either natural or man made, prevent sea trout from utilizing the other becks. There is no evidence that salmon frequent the coastal streams. Water quality issues restrict the extent of fish populations on Skelton Beck and periodic pollution incidents on the lower reaches of Kilton Beck have caused extensive fish kills in previous years.

Formal angling on the coastal streams is restricted to Skelton Beck which is stocked with brown trout on an annual basis. See 5.5.1 & 5.5.2.

### 2.5.3 HERITAGE

The landscape of Britain contains a rich heritage of historic and archaeological features. Archaeological evidence of past human existence is widespread in the rural landscape with rivers and the coast the focus for settlements from prehistoric times to the present day. Watercourses have long been important for the supply of water for domestic use as well as the movement of people and the generation of power. Many settlements owe their existence to the presence of watercourses and other favourable physical features.

The Esk and Coast catchment has a rich and varied history and contains numerous Scheduled Ancient Monuments (SAMs) and villages designated as Conservation Areas because of their special architectural or historical interest.

Settlements close to, and on the banks of the River Esk are known to have been in existence from at least the 1st - 4th Centuries AD, although it is highly probable that riverside sites were used far earlier than this for hunting and fishing. Actual farming settlements are likely to date from the time that the post glacial forests were cleared. The Esk Valley has been highly affected by the influence and land ownership of religious houses, such as Whitby Abbey and Grosmont Priory in the medieval period. The Esk catchment has also been greatly influenced by industrial activities, particularly the mining of iron-stone and jet. The River was also used to power a series of mills.

Archaeological records show that man has inhabited this stretch of coast for many centuries as remains found immediately inland range from prehistoric burial mounds, through Roman signal stations, to more recent industrial relics. A variety of harbour works, breakwaters and building foundations are also found along the coast and reflect past industrial activities such as mining, fishing and trade in general. Offshore, the archaeological record is largely unknown but there must be a great number of monuments of past times, such as ship wrecks and submerged early settlements. See 5.6.2 & 6.5.



**2.6 KEY DETAILS****Area:** 751 km<sup>2</sup>**Administrative Details**

<b>Unitary Authorities:</b>	Hartlepool BC Redcar and Cleveland BC Tees Valley Joint Strategy Unit*	<b>County Councils:</b>	North Yorkshire
<b>District Councils:</b>	Ryedale DC Hambleton DC Scarborough BC	<b>Navigation Authority:</b>	Scarborough Harbour Dept. Whitby Harbour Dept. THPA
		<b>Water Companies:</b>	Northumbrian Water Ltd Yorkshire Water Services Hartlepool Water Co

**Area Information****Waste Arisings**

Waste Management Licences	32
Municipal waste arisings#	130,000 tonnes pa
Industrial and commercial waste arisings#	200,000 tonnes pa

**Industry**

IPC Authorisations	2
IPC Sites	2
Radioactive Substances Authorisations	1
Radioactive Substances Registrations	8

**Water Quantity**

Licensed Surface Water Abstractions	99	River flow measurement -	
Licensed Groundwater Abstractions	22	River Esk at Briggswath:	
Total Volume of Authorised Abstractions	15773 tcma	mean flow:	4.54 m <sup>3</sup> /s
		median flow	2.43 m <sup>3</sup> /s
		dry weather flow	0.60m <sup>3</sup> /s

(Median flow- the river flow is more than this 50% of the time; dry weather flow- the river flow is more than this 95% of the time.)  
The Briggswath gauge was built in 1992 to improve the accuracy of flow measurement on the lower Esk. Once adequate correlation with the existing measurement station at Sleights Weir has been achieved, the Sleights station will be decommissioned.

**Ecology and Fisheries**

Section 30 Consents to Introduce Fish	4 pa
Sites of Special Scientific Interest	28
Local Nature Reserves	1
Heritage Coast	1
National Park	1
National Trust Holdings	24
Yorkshire Wildlife Trust Sites	4
Cleveland Wildlife Trust Sites	6
Sensitive Marine Area	1
Special Protection Areas	1

**Water Quality**

Consented Sewage Discharges	54
Major Sewage Outfalls to Sea**	7
Consented Industrial Discharges	16

\* Tees Valley Joint Strategy Unit produces the strategic plan on behalf of the unitary authorities of the former Cleveland County, but is not a planning authority.

# Estimations

\*\* Major sewage outfalls are those serving a population equivalent of over 10,000.



**3.0 PROTECTION THROUGH PARTNERSHIP**

This section gives an insight into the way in which the Agency collaborates with other organisations for the benefit of the environment.

	<b>Page Number</b>
<b>3.1 <u>INTRODUCTION</u> .....</b>	<b>22</b>
<b>3.2 <u>EDUCATION</u> .....</b>	<b>22</b>
<b>3.3 <u>KEY PARTNERSHIPS</u> .....</b>	<b>22</b>

### **3.0 PROTECTION THROUGH PARTNERSHIP**

#### **3.1 INTRODUCTION**

The Agency is well placed to influence many of the activities affecting the environment through the Environment Act 1995 and other legislation. This section provides the opportunity to address longer term management issues in partnership with others.

The Agency must work in partnership with others to ensure that the actions mentioned in Section 4 are implemented and that the key objectives and the long term vision can be realised. The Agency will strive to increase and improve links and will work closely with local authorities in particular to ensure that this happens. Dales Area also seeks to increase the number of partnership opportunities with statutory and non-statutory groups in order to carry out improvement projects and develop a wider public awareness of environmental issues.

The organisations which responded to informal consultation are set out in Appendix F.

#### **3.2 EDUCATION**

Good awareness of educational issues is of paramount importance for all successful environmental management. The Agency will seek to educate and influence individuals, groups and industries to promote best environmental practice. It will work in partnership with statutory and voluntary groups to carry out improvement projects and develop a wider public awareness of environmental issues.

The Agency will also work with schools and other educational establishments to develop in our children an ethos of caring for their whole environment.

#### **3.3 KEY PARTNERSHIPS**

##### **Introduction**

This section covers the role of local authorities in relation to land use planning, air quality, waste management and flood defence. It also recognises some of the key groups and organisations which play an important role in protecting the local environment.

##### **Development Planning**

Land use is one of the most important influences on the environment. It follows, therefore, that land use change has important implications for the environment which can be regarded as both positive and negative. Within the Plan area, land use planning is administered by county, district and unitary planning authorities and the North York Moors National Park Authority, which now has its own planning powers. The Tees Valley Joint Strategy Unit also provides strategic guidance on planning to the Hartlepool

and the Redcar and Cleveland Unitary Authorities within the Plan area; the two areas were previously part of Cleveland County Council. Control of land use planning is achieved through implementation of the Town and Country Planning Acts and a range of Government planning guidance. This guidance highlights the relationship between land use and the environment and emphasises the importance of effective communication between local planning authorities (LPAs) and the Agency.

The Agency is committed to developing close working relationships with LPAs to promote effective links between planning and environmental protection. The Agency's Planning Liaison team acts as a 'one stop shop', providing a link between the Agency's functions and the Local Authority planners, see Issue 3.

### Development Plans

Regional Planning Guidance for Yorkshire & Humberside (RPG12) was issued by the Department of Environment (DoE) in March 1996 after consultation with, amongst others, the LPAs and one of the Agency's predecessors, the NRA. It sets out the following broad objectives for the area:

- to promote economic prosperity;
- to conserve and enhance the environment;
- to stimulate regeneration and renewal of urban areas;
- to facilitate rural diversification; and
- to encourage efficient use of available resources and energy.

County Council structure plans, District Council local plans and Unitary Authority development plans must be produced by the respective planning authorities. They set out the council's land use objectives and are prepared in accordance with the RPG. These plans provide a framework for land use change and are a key consideration in the determination of planning applications. The Agency is a statutory consultee for all of these plans which allows its views to be considered by the councils when formulating local development plan policies and allocating land for development.

Development plans guide future environmental evolution. Through the consultation process, the Agency encourages LPAs to adopt policies which protect the environment from any of the potentially harmful effects of development.

In addition to the above plans, county councils also prepare a Minerals Local Plan and a Waste Local Plan. The Minerals Local Plans indicate areas where provision is made for mineral workings and the requirements for the restoration and aftercare of such sites. The Waste Local Plan can be an integral part of the Minerals Local Plan or alternatively a "stand alone" document.

The NRA produced a set of statements in its document "Guidance Notes for Local Planning Authorities on the Methods of Protecting the Water Environment through

Development Plans". These statements provide a general guide to LPAs on which policies should be included in the various plans and why they are important. This guidance is currently being updated by the Agency.

### **Contaminated Land**

In 1999, the Agency and Local Authorities will be empowered to deal with contaminated land. Local Authorities will be required to carry out surveys to identify contaminated land in their respective areas. The Agency will act as a source of technical expertise and will take a lead role on 'special sites' which are yet to be identified. Heavy industry is often a source of land contamination so, potentially, there could be a number of sites in the North of the plan area.

### **Development Control**

The Agency is also a statutory consultee on certain categories of planning application and councils have discretionary powers regarding the referral of other matters. This allows the Agency's views to be considered by the council prior to the determination of planning applications. However, the planning system should not be seen to duplicate the controls which are the statutory responsibility of other regulatory bodies. See 5.1.1.

### **Local Agenda 21**

Agenda 21 was one of the four main agreements signed at the Earth Summit at Rio by representatives of 150 countries, including the UK government. It is intended to be:-

*"A comprehensive programme of action needed throughout the world to achieve a sustainable pattern of development for the next century".*

Agenda 21 includes initiatives to further the concept of sustainability and includes waste management issues and the promotion of environmental awareness. In 1994, the Government produced a national sustainable development strategy and action plan for the UK. At a local level, the Government requested that all local authorities work with local communities to produce their own Local Agenda 21 (LA21) programmes, to promote sustainable development and to co-ordinate action in an aim to improve their community's quality of life. Guidance to local authorities on the Agency input to LA21 is due to be issued in the near future.

The Agency is committed to encouraging more sustainable lifestyles for all, through our work and partnership with others. The Agency is keen to develop closer relationships with local communities - playing a part in LA21 will help to achieve this. LEAPs provide proposals for action which can feed directly into LA21 Action Plans.

Guidance to Local authorities includes the 5 key stages in LA21, which are:

- to integrate the aims of sustainable development into all aspects of Environment Agency work;
- to raise the awareness of local issues in relation to their local, regional, national and global impact;
- to measure, monitor and report on the progress of actions, through the use of environmental indicators;
- to develop lasting partnerships with other organisations and agencies; and
- to involve all sections of the community. See 1.3.

### **Local Community**

The community will have its own aspirations in relation to the local environment. The role of the community within LA21 work is not to be underestimated and when possible will be encouraged by the Agency. The Agency is keen to develop closer links with the community to encourage environmental protection and enhancement.

### **Air Quality**

Under Part 1 of the Environmental Protection Act 1990, Local Authority Environmental Health Departments regulate air pollution from thousands of processes, termed "Part B Processes". These are processes with generally less potential to pollute compared to the Part A processes that the Agency regulates under IPC. Local authorities regulate these processes for releases to air, ie. not through IPC, which controls releases to air water and land.

Local authorities are also required, under the Environment Act 1995, to review present and future air quality in their areas against air quality objectives and standards to be prescribed by central government. The reviews will be in the form of Local Air Quality Plans for which the Agency will be a consultee. The Agency will look to produce an Air Quality Plan for the two IPC processes in the Esk and Coast area, Britmag in Hartlepool and British Steel Skinningrove, for input into the Local Authority plans. See 2.2 & 6.2.1.

### **Waste Management**

Local authorities are the key partners within the waste management system and, as the planning authority, determine the location of waste management facilities in accordance with policies contained in the Waste Local Plan, county structure plan and local development plan. They are instrumental in determining regional waste management requirements. It is essential that the Agency continues to work closely with LPAs in order to further the concept of sustainable waste management.

The land use planning system also has a role to play in the provision of waste management facilities. It identifies the need for any facility and has regard to its likely impact both on the environment, in terms of traffic generation, and on local amenity through visual intrusion, litter, dust, noise, odour and vibration. It considers the adverse



effects on wildlife, conservation and future development together with the benefits to be gained from, for example, the restoration of former mineral workings or the reclamation of derelict or contaminated land. The proposed after-use of the site is also of paramount importance, hence the planning system ensures that only environmentally acceptable proposals are pursued. See 2.3.4, 5.2 & 6.3.1.

### **Flood Defence**

The Agency has specific powers relating to 'main rivers' which enable it to carry out maintenance and improvement works, to construct flood defences and to control the work of others. The Agency has a general supervisory role over all flood defence matters which requires working in close partnership with other drainage authorities. In addition to works on 'main rivers', the Agency also has regulatory powers to control weirs and culverts which would affect flows on ordinary watercourses.

The Agency works closely with the Local authorities on certain flood defence matters. Examples of this are the collaboration with Scarborough Borough Council on their strategic flood and coastal defence study at Whitby, and with the relevant Local authorities in the preparation of a Shoreline Management Plan for the North East coast of England.

Local authorities are responsible for flood defence on 'ordinary watercourses'. The appropriate legislation relating to ordinary watercourses is to be found in the Land Drainage Act 1991.

The powers of the Agency are clearly defined by the Land Drainage Act 1991 and the Water Resources Act 1991. See 5.4 & 6.4.3.

### **Memoranda of Understanding/Accords**

The Agency has signed a number of Memoranda of Understanding with other organisations. Of most interest in this LEAP area are those with: English Nature; MAFF; and the Health and Safety Executive (which establish a mutual understanding and common purpose); with the Associations of County Councils, District Councils, and Metropolitan Authorities (now merged into a single Local Government Association) which covers consultation and cooperation; and with the Meteorological Office on the dissemination of general flood warnings.

A Memorandum of Understanding has also been drafted with the Countryside Commission and the English Sports Council emphasising the Agency's commitment to recreation.

The Agency has also signed an Accord with the Association of National Parks Authorities which sets out the commitment and shared objectives of the parties.

#### 4.0 ISSUES AND PROPOSALS

Throughout the preparation of this Consultation Report a number of issues, objectives and proposals have been identified which require consideration by all those interested in the future of the Esk and Coast area. These have been identified by:

- comparing the current state of the local environment targets with National and Regional ones;
- informal consultation with the Area Environment Groups and selected organisations;
- considering pollution incidents and complaints; and
- using local knowledge of Agency staff.

The objectives and proposals presented are the initial views of the Agency and do not constitute policy statements. For ease of reference, the issues have been divided into three categories: Area wide issues, coastal issues and inland issues.

*Comments on the objectives and proposals are requested together with any ideas/suggestions.*

Each issue will be presented in the following format:

<b><u>ISSUE</u></b>	What the perceived problem is
<b>Background</b>	Why we believe it is an issue to be addressed
<b>Objective</b>	What the proposals seek to achieve
<b>Proposals</b>	Proposals which could be developed to address the objectives

**A detailed Action Plan, setting costs and timetables, will only be established after the consultation phase.**

Each issue must not be viewed in isolation, as the issues all contribute towards a single vision - the future environmental well-being of the Esk and Coast area.

*Policies and objectives contained in this document may be subject to change in line with the Agency's altered priorities and the availability of funding.*

Number	Issue	Page Number
Issue 1	Increase environmental awareness .....	29
Issue 2	Increase opportunities for effective environmental protection through collaborative working .....	30
Issue 3	Protect and enhance biodiversity .....	31
Issue 4	Promotion of sustainable recreation .....	32
Issue 5	Risk of flooding to people and property .....	32
Issue 6	Potential environmental damage from activities exempt from the waste licensing process .....	34
Issue 7	Facilitate waste minimisation projects .....	35
Issue 8	The impact of the land fill tax on fly tipping .....	35
Issue 9	Risk of environmental damage from a major oil spill in coastal waters .....	36
Issue 10	Threats to fish stocks in the River Esk and the coastal waters .....	37
Issue 11	Threats to coastal water quality from permitted discharges .....	37
Issue 12	Threats to inland water quality .....	39
Issue 13	Poor operational standard of household waste disposal sites .....	40
Issue 14	Remediation of pollution problems from closed and operational landfill sites .....	41



## **ISSUE 1**

Increase environmental awareness.

### **Background**

One of the most important ways in which the Agency can improve the environment is by raising the awareness of environmental issues and new legislation, thereby changing attitudes. This is best achieved by working with the community to educate/inform them as to how legislative changes affect them. Acting in an environmentally sustainable manner can benefit the individual and the environment. See 3.2.

A European Directive on Integrated Pollution Prevention and Control (IPPC) has been passed. This will be brought into UK legislation by October 1999. The significance to local industry and the regulatory roles of the Agency require identification.

The Agency provides pollution prevention advice on a wide range of topics, for example the storage of chemicals and farm wastes.

### **Objective**

To promote an understanding of environmental protection and the need to comply with regulations to protect the environment.

### **Proposals**

- Collaborate with businesses to inform them as to how changes in legislation affect them: minimise the financial burden and maximise the benefits. See 3.0.
- Identify the implications of the introduction of IPPC and the local industries which will be affected. Ensure that they are aware and have compliance strategies in place. See 3.0.
- Actively participate in the formulation of Local Authority LA21 Action Plans. See 1.3 & 3.3.
- Produce education packs and work with schools and other educational establishments. See 3.2.
- Identify and visit sites with the potential to pollute, both industrial and agricultural, with the specific aim of improving practice with regard to preventing pollution. See 3.2.

## **ISSUE 2**

Increase opportunities for effective environmental protection through collaborative working.

### **Background**

To ensure effective environmental management, the Agency recognises the requirement and benefits of working with other organisations. Agency resources are limited, as are many other organisations, so pooling available resources may be the only way of facilitating environmental improvements. Joint working allows knowledge and expertise to be shared.

There are major collaborative projects already in existence in the plan area: River Esk Regeneration Project; North Yorkshire and Cleveland Heritage Coast Project, and the management of the more sensitive marine environment.

The River Esk Regeneration Project has received Objective 5b European Union Structural Fund monies. Objective 5b funding is awarded to disadvantaged rural areas and funding must be of economic benefit, such as the creation of wealth and jobs. The project aims to improve fish habitats on the river, to increase fishing and thereby increase income. A further outcome of this project may be the development of a self sustaining salmon fishery in the river.

Thirty four miles of the North Yorkshire and Cleveland Coast, from Saltburn to Scalby Mills, are designated as Heritage Coast. The designation includes the finest stretches of undeveloped coast in England and Wales. Objective 5b funding has been secured for a Heritage Coast Project. The Agency is a partner in the project with the North York Moors National Park Authority, North Yorkshire County Council, the Countryside Commission, English Nature, the relevant Local authorities, the Ministry of Agriculture, Fisheries and Food (MAFF), the National Trust and the Royal Commission on the Historical Monuments of England. The aims of the project include encouraging access whilst facilitating appropriate protection and management.

In the absence of a single authority responsible for coastal matters, effective conservation of important marine and coastal sites depends upon co-operation between government agencies, the voluntary and private sector, special interest groups and the community. Whilst some sites such as SSSIs and Marine Nature Reserves receive statutory protection others, such as Sensitive Marine Areas (SMAs), are only protected and managed by voluntary agreements. See 3.0.

### **Objective**

Establish and maintain effective collaborative projects whilst maximising all potential funding sources.



### Proposals

- Install a fish counter at Sleights Weir and provide habitat improvement and land use management advice to increase the production of juvenile salmonids as part of the River Esk Regeneration Project. See 2.5.1 & 5.6.2.
- Contribute to and utilise an assessment of access points along the coast which have recreational potential. Contribute to and utilise the Heritage Coast Project recreation database for the provision of information to the public, and to guide Agency strategy. See 5.6.2.
- Make financial contributions to the Heritage Coast Project in order to help fund a Project Officer until 1999. See 2.5.3 & 5.6.3.
- Liaise with other bodies to explore ways in which special sites and the fauna and flora they support can be better managed. Provide data which may enable further special sites to be identified. See 3.0.

### ISSUE 3

Protect and enhance biodiversity.

### Background

The UK Government signed up to the Biodiversity Action Programme which originated from the Rio Summit 1992 in recognition of the global threat to biodiversity. The Agency is specifically involved with 53 species (dependent upon the aquatic environment) and 7 aquatic habitats, being the contact for 12 species and 1 habitat and lead partner for 11 species.

In order to protect biodiversity control of certain species can be required. Some invasive or alien plant species are a threat to biodiversity, one such plant is bracken. The invasion of bracken is threatening the biodiversity of the Esk and Coast area and may also affect the economy and recreational enjoyment of the area. However, the control of bracken must be carefully managed, as poor application of the herbicide 'Asulam' can lead to destruction of vegetation cover, hillside erosion and subsequent impact on aquatic systems.

### Objective

Maintain and enhance biodiversity in the plan area.

### Proposals

- Implement assigned actions within the costed Species Action Plans for the

conservation of those species for which the Agency has taken special responsibility and are known to occur in the plan area, that is Water Voles and Otters, and any others subsequently found. See 2.5.1 & 6.5.

- Liaise with Yorkshire Water Services, Northumbrian Water Limited, International Bracken Group, the Moorland Association, North York Moors National Park Authority and others to ensure effective use of asulam for the sensitive control of bracken. See 3.0.
- Increase awareness of invasive and alien plant species and ensure that the management of these species is carried out in an environmentally sensitive way. See 3.2 & 5.6.1.

#### **ISSUE 4**

Promotion of sustainable recreation.

##### **Background**

Tourism and recreation are very important to the economy of the area but the potential for environmental damage in vulnerable areas is great. Tourists tend to be attracted to areas which are both beautiful and environmentally fragile. Although the Agency has limited powers, it is able to influence land use with regard to tourism through planning liaison. Popular forms of recreation in the area include walking, fishing, shooting, cycling, sailing and canoeing. See 5.1.7.

##### **Objective**

To balance the needs of the environment with the need for recreation and general enjoyment of the countryside.

##### **Proposals**

- Improve links with the North York Moors National Park Authority and Tourist Boards to explore sustainable recreation opportunities. See 5.1.7 & 5.5.
- Through the planning process, the Agency will encourage sustainable recreation. See 1.3 & 5.5.1

#### **ISSUE 5**

Risk of flooding to people and property.

##### **Background**



Historically, development has been centred on the area's rivers which provided a route for communication and a source of water. Where development has taken place in the natural flood plain, properties will be at risk from flooding unless works are undertaken to reduce the risk. It is not practicable, cost effective or environmentally acceptable to protect all vulnerable properties. However, where the Agency's powers and funding permit, it will undertake a priority-based programme to provide effective protection for people and property against flooding. This is achieved by the construction and maintenance of flood defences and through the provision of effective and timely warnings.

On the River Esk, there is no recent history of significant flooding problems and flood defences have not been constructed or maintained. However, a number of properties at Lealholm and Ruswarp are known to be at risk from flooding. Currently there is no flood warning system in place for the River Esk catchment.

For the length of coast within the plan area, properties are at risk of tidal flooding at Hartlepool, Redcar, Saltburn, Skinningrove, Staithes, Sandsend, Whitby and Scarborough. There are currently no sea or tidal defences operated by the Agency but all coastal areas except Skinningrove are included in the flood warning system. See 5.4 & 6.4.3.

### Objective

Provide and maintain flood defences and a timely, reliable and accurate flood warning service.

### Proposals

- Investigate the provision of a flood warning service for the Esk catchment. See 5.4 & 6.4.3.
- Install telemetry at Lealholm and Castleton to support flood warning. See 5.4 & 6.4.3.
- Investigate the feasibility of providing flood defences at Ruswarp. See 5.4 & 6.4.3.
- Refine and improve the existing tidal/coastal flood warning service by improving flood forecasting and the coverage of the Automatic Voice Messaging System. See 5.4 & 6.4.3.
- Include Skinningrove on the existing coastal flood warning system. See 5.4 & 6.4.3.
- Collaborate with Scarborough Borough Council on their strategic flood and

coastal defence study at Whitby to include flood risk areas within the harbour area and if appropriate carry out a full feasibility study of the options available for increasing the standard of flood protection. See 5.4 & 6.4.3.

- Investigate the feasibility of providing sea defences at Redcar. See 5.4 & 6.4.3.
- Undertake a Section 105 survey of flood vulnerable sites starting with the high priority sites -The Stell at Golden Flatts, Hartlepool and the North Sea coast at Hartlepool. See 5.4 & 6.4.3.

## **ISSUE 6**

Potential environmental damage from activities exempt from the waste licensing process.

### **Background**

Certain activities, notably the spreading of waste (including abattoir wastes) on agricultural land, some composting and certain landscaping schemes, have been exempted from the waste licensing process. There is some concern that not all of these schemes are carried out within the terms of the relevant exemption and the pollution consequences of this can be serious.

Those undertaking such exempt activities are obliged to register their activities with the Agency for inspection and supervision. The Agency gains no income from the supervision of these activities and this therefore requires a diversion of resources from elsewhere.

Certain of these activities are subject to planning control by local authorities and in order to exert a degree of control over the activities the Agency liaises with the planning departments.

### **Objective**

Ensure activities exempt from the waste licensing regime do not adversely affect the environment.

### **Proposal**

- Supervise land spreading activities to ensure land spreading of waste is beneficial to the land. This will be achieved by carrying out a programme of 'before and after' visits to land subject to land spreading to assess the actual benefit to the land. See 3.2 & 6.3.
- Collaborate with local authorities to ensure that exempt activities controlled by the planning process have a minimal potential for pollution. See 5.2 & 6.3.



## ISSUE 7

Facilitate waste minimisation projects.

### **Background**

The White Paper, 'Making Waste Work' produced by the DoE [now the Department of the Environment, Transport and the Regions (DETR)] in 1995, highlighted the concepts of waste minimisation and the waste hierarchy. There are four stages in the waste hierarchy: to reduce waste production; to reuse waste materials or products; to recover value or energy from them during disposal, which may be through recycling but can also be through incineration with energy recovery; or finally, to dispose of wastes. The White Paper recognises that, for some waste streams, waste disposal to landfill may be the best practicable environmental option (BPEO). To encourage the first two, the Agency been working Nationally with the Environmental Technology Best Practice Programme (ETBPP) and smaller industries to implement waste minimisation schemes. A number of companies in the Hartlepool and Skelton area have recently participated in a pilot waste minimisation programme. See 5.2.1.

### **Objective**

Raise awareness of the waste strategy and waste minimisation in the area.

### **Proposals**

- Facilitate the establishment of waste minimisation clubs amongst small to medium sized enterprises. See 5.2.1 & 6.3.
- Assist local 'champions' of waste minimisation to spread the word by arranging waste minimisation seminars. See 5.2.1 & 6.3.
- When the national waste arisings survey data becomes available, target the most appropriate areas in the South of the plan area for waste minimisation initiatives. See 5.2.1 & 6.3..

## ISSUE 8

The impact of the landfill tax on fly-tipping.

### **Background**

The advent of the landfill tax in 1996 had a significant impact on the cost of disposing of waste. A consequence has been an increase in the incidence of fly-tipping in parts of the catchment area. However, the changing economics have made certain waste reprocessing and recycling operations more cost effective, for example, secondary

aggregate production.

### Objective

Reduce fly-tipping and raise awareness of alternative methods of waste disposal.

### Proposals

- Collaborate with local authorities and landowners to prevent areas becoming fly-tipping black spots. Target fly-tipping black spots with surveillance exercises. See 5.2.1.
- Raise awareness of waste producers' obligations under the Duty of Care to ensure that their wastes are handled and disposed of correctly. See 5.2.1 & 6.3.
- Make information on waste reproprocessors and recyclers available to waste producers. See 5.2.1 & 6.3.

## ISSUE 9

Risk of environmental damage from a major oil spill in coastal waters.

### Background

The Tees Estuary, which dissects the plan area, is a busy port, with large container ships and tankers regularly using the coastal waters of the Esk and Coast area to access the port. A major spillage from these vessels would potentially have a considerable negative impact upon the environment in the plan area. In order to be prepared for such an eventuality, Scarborough Borough Council and North Yorkshire County Council commissioned the Emergency Planning Unit of the County Council to prepare a Coastal Oil Spill Contingency Plan which was published in April 1994. A similar plan exists for Hartlepool and Redcar and Cleveland.

### Objective

To have an operationally viable contingency plan in place.

### Proposal

- Collaborate with all other organisations involved, to update and improve emergency procedures as necessary. Input into the upgrading of the Tees Counter Oil Pollution Association Oil and Chemical Spillage Action Plan.



## ISSUE 10

Threats to fish stocks in the River Esk and the coastal waters.

### **Background**

Fishing - trawling, potting, netting and smaller scale angling - is an important part of the economy of the plan area. The Agency is the responsible body for enforcement of fisheries legislation within the six mile limit, for migratory fish. The Agency and the North Eastern Sea Fisheries Committee operate a system of cross warranting to ensure adequate levels of enforcement in coastal waters. See 5.5.1.

The Esk is a good quality migratory salmonid fishery and is the main salmon river in Yorkshire. Consequently, the river has become the target of poachers. Illegal removal of fish from the river and coastal waters damages fish stocks and the local economy. Both the coastal and inland fisheries require careful management.

### **Objective**

Minimise illegal activities which threaten the integrity of fish stocks and produce a Salmon Action Plan for the River Esk.

### **Proposal**

- Collaborate with the North Eastern Sea Fisheries Committee, and other organisations to ensure protection of fish in the area. To achieve this, the Agency will maintain surveillance and anti-poaching patrols; expand our intelligence gathering network and support the Closed Circuit TV system in Whitby Harbour. See 5.5.1.
- Produce and implement a Salmon Action Plan for the River Esk which will identify a spawning target and facilitate effective management of the salmon stocks. See 5.5.1.

## ISSUE 11

Threats to coastal water quality from permitted discharges (see Figure 8).

### **Background**

The Agency monitors the quality of bathing waters around the coast of the UK. Relatively poor bathing water quality, as highlighted through this monitoring, has led to major investment schemes by Northumbrian Water Limited (NWL) and Yorkshire Water Services (YWS).

Bathing waters which are still at particular risk of failure due to coastal sewage schemes which have yet to be completed are Staithes, Sandsend and Robin Hood's Bay.

Primary treatment needs to be installed by the end of 2000 at all coastal outfalls serving populations of over 10,000 to comply with the Urban Waste Water Treatment Directive. Discharges to which this applies are Brus, Seaton Carew, Marske, Whitby, Scarborough (Scalby), Wheatcroft and Filey. These outfalls are classed as 'major'. Brus is however to be eliminated in early 1998 with the diversion of flow to Seaton Carew.

Both NWL and YWS have submitted comprehensive studies seeking to justify the existing High Natural Dispersion Area (HNDA) status. These studies are being evaluated to determine whether secondary treatment is required under the Urban Waste Water Treatment Directive at outfalls serving populations of greater than 10,000.

Appropriate treatment needs to be installed at outfalls serving populations less than 10,000. This affects a number of outfalls including Skinningrove, Staithes, Robin Hood's Bay and Sandsend. Where these outfalls are causing Bathing Water Directive non-compliance or nuisance, the installation of early treatment will be sought.

The trade effluent discharge from Cleveland Potash is permitted by a Consent to Discharge under the Water Resources Act 1991. The mine has recently secured planning permission to extend its area of operations. The company is actively seeking an alternative to sea disposal of mining waste.

The River Tees Estuary is beginning to recover from the chronic pollution which began in the 1920s as a consequence of the development of the iron, steel and chemical industries. Since 1970, there has been a dramatic improvement in water quality. Commitments have been received from industry and NWL which will result in continued improvements which will benefit coastal water quality. See 5.2.2 & 6.4.2.

### Objective

Improve coastal water quality.

### Proposals

- Monitor and assess the effectiveness of the investments in the coastal sewage schemes by both NWL and YWS. See 5.2.2 & 6.4.2.
- Ensure improvements are made to coastal sewage discharges to achieve compliance with the Bathing Water Directive (see Appendix C). See 5.2.2 & 6.4.2.
- Evaluate NWL's and YWS's comprehensive studies which seek to justify the HNDA status of coastal outfalls serving populations of over 10,000. See 5.2.2.



- Determine 'appropriate treatment' under the Urban Waste Water Treatment Directive for coastal sewage discharges serving populations of less than 10,000 (see Appendix C). See 5.2.2.
- Work with NWL to agree timescales for carrying out improvements to the Skinningrove coastal sewage discharge having regard to expenditure agreed by OFWAT in AMP2. See 5.2.2.
- Monitor bathing water quality at Scarborough to ensure that YWS's new outfall at Wheatcroft does not cause Bathing Water Directive non-compliance. See 5.2.2 & 6.4.2.
- Work with Cleveland Potash to monitor the impact of their coastal solids disposal and to explore alternative disposal options. See 6.4.2.
- Work with industry to improve Tees Estuary water quality. See 6.4.2.

## ISSUE 12

Threats to inland water quality.

### **Background**

The upper reaches of the River Esk and its tributaries are known to be affected by ochre staining, acid run off, and other pollutants. The ochre staining is a natural occurrence-it is a deposit of ferric oxide which coats the river bed. The deposit is visually offensive and has a negative impact on the river habitat but is extremely difficult to remove. Acid run off is also largely natural due to the nature of the peat moorland, the effects of recent dry summers, and low pH rainfall in the area (as found in a study by the University of Huddersfield). Other pollutants, for example sheep dip, are under investigation. Forthcoming legislation, 'The Groundwater Regulations', will give the Agency powers to control the disposal of sheep dip to land and thereby protect the water environment.

Monitoring has illustrated that Skelton Beck and Howl Beck are of poorer quality than would ordinarily be expected.

### **Objectives**

To improve water quality in the upper reaches of the Esk and its tributaries where practicable. Meet water quality targets for Skelton and Howl Becks.

### **Proposals**

- Identify the cause of poor water quality by undertaking investigative monitoring. See 6.4.2.

- Undertake a farm pollution prevention campaign to investigate intermittent changes in water quality thought to be a result of sheep dip contamination. See 5.1.5 & 6.4.2.
- Improve the quality of the coastal streams, Skelton Beck and Howl Beck, so that the River Quality Objectives (RQO) are achieved. See 6.4.2.

### **ISSUE 13**

Poor operational standard of household waste disposal sites.

#### **Background**

There are four operational landfill sites in the catchment with a history of ongoing problems. These problems fall into two categories: pollution with the potential to be harmful to human health; and damage to amenity caused by poor day-to-day standards of operation resulting in litter, smells and visual blight. All of the sites have areas which are quite visible and consequently the visual impact of operations can be high. This high visual impact can raise the profile of the sites in the local communities. See 5.2.1 & 6.3.1.

#### **Objective**

The promotion of good working practices and the reduction in the impact of landfill sites on the communities in which they are based.

#### **Proposals**

- Promote best practice amongst operators by informing them of the operational and environmental benefits. See 5.2.1 & 6.3.
- Encourage operators to take account of the sensitivities of the local community. See 5.2.1 & 6.3.
- Collaborate with other agencies, such as Local Authority Environmental Health Officers, over problems with statutory nuisance arising from Agency licensed landfill sites. See 5.2.1 & 6.3.
- Participate in meetings of the Thornton Fields Liaison Group and encourage other operators to establish similar groups. This is a group established by Biffa Waste Services to foster good relations with the local community. See 3.3.



## **ISSUE 14**

Remediation of pollution problems from closed and operational landfill sites.

### **Background**

Landfill sites which have taken biodegradable wastes have the potential to generate leachate and landfill gas. Landfill gas, as well as being dangerous, is a greenhouse gas and thought to be a significant contributor to global warming. As landfill science is relatively new, older waste disposal sites often cause more pollution problems than newer ones. Historic pollution from old landfills is the responsibility of the landowners and local authorities. Until recently, it was possible for landfill operators to return their licences and the liabilities associated with them with no regard for future pollution problems. With the adoption of the Environmental Protection Act 1990, this is no longer possible, but there is an area to the North of Guisborough which has been subject to land filling over the years and has some long-standing problems with historic pollution.

### **Objective**

Promotion of landfill gas utilisation schemes and reduction of pollution from landfill sites.

### **Proposal**

- Collaborate with Cleveland Waste Management, Biffa Waste Services and Redcar and Cleveland Council to explore the possibility of using landfill gas to produce electricity. See 5.2.1 & 6.3.
- Encourage operators to take a proactive approach to deal with the pollution which they generate by putting systems in place to deal with leachate and to take the responsibility for historic pollution arising from earlier activities, particularly in the Guisborough area. See 5.2.1 & 6.3.



## PART II

Part II is split into two sections.

Section 5 identifies uses and activities which are prevalent in the Esk and Coast (Hartlepool to Filey Bay) area.

Section 6 seeks to measure the environmental quality of the area against identified targets (if available).



**5.0 USES, ACTIVITIES AND PRESSURES**

**Page  
Number**

<b>5.1</b>	<b><u>ECONOMIC</u></b>	
5.1.1	DEVELOPMENT .....	44
5.1.2	INDUSTRY .....	49
5.1.3	STORAGE AND USE OF RADIOACTIVE SUBSTANCES .....	50
5.1.4	TRANSPORT .....	51
5.1.5	LAND USE, AGRICULTURE AND FORESTRY .....	52
5.1.6	MINERAL EXTRACTION & MINING .....	56
5.1.7	TOURISM .....	57
<b>5.2</b>	<b><u>WASTE MANAGEMENT</u></b>	
5.2.1	SOLID WASTE DISPOSAL .....	58
5.2.2	EFFLUENT DISPOSAL .....	66
<b>5.3</b>	<b><u>SURFACE WATER AND GROUNDWATER ABSTRACTION</u></b>	
5.3.1	SURFACE WATER ABSTRACTION .....	71
5.3.2	GROUNDWATER ABSTRACTION .....	73
<b>5.4</b>	<b><u>FLOOD STORAGE AND FLOOD DEFENCE</u></b> .....	74
<b>5.5</b>	<b><u>RECREATION AND AMENITY</u></b>	
5.5.1	ANGLING .....	81
5.5.2	COMMERCIAL FISHING AND ENFORCEMENT .....	84
5.5.3	NAVIGATION AND WATER BASED ACTIVITY .....	85
5.5.4	LAND BASED ACTIVITY .....	88
<b>5.6</b>	<b><u>CONSERVATION</u></b>	
5.6.1	FLORA AND FAUNA .....	88
5.6.2	ARCHAEOLOGY AND HERITAGE .....	93

## **5.1 ECONOMIC**

### **5.1.1 DEVELOPMENT**

#### **Background**

The broad objective of Local Environment Agency planning is to conserve and enhance the environment through effective land and resource management. While the Agency is well placed to influence some of the factors which impact on the environment through its regulatory powers, it has little control over the mechanisms which determine land use change. This is largely the responsibility of the LPAs through Town and Country Planning Legislation.

The Agency is a statutory consultee on development plans for categories of development specified in Article 10 of the Town and Country Planning (General Development Procedures) Order of 1995 and under Regulation 8(6) of the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 for planning applications relating to specific types of projects.

In addition, LPAs consult the Agency “informally” on other development applications and briefs which have the potential to have an adverse impact on the environment. However, the final decision on planning matters rests with the LPA. See 3.3.

Regional Planning Guidance is non-statutory advice from the Secretary of State to the LPAs. The Regional Guidance for Yorkshire and Humberside and the North East is in the process of being updated. This update is co-ordinated by the relevant Government Offices.

#### **Local perspective**

##### **Residential development**

North Yorkshire County Council issued strategic guidance in their County Structure Plan for residential development until the year 2006. This seeks to reduce the rate of house building from levels experienced in the 1970s in order to relieve pressure on the County's environment. However, there is a need to ensure that sufficient land is made available for housing to accommodate demographic changes and to provide an adequate supply of affordable housing. Within the Esk and Coast area, the majority of housing development will be located mainly in and around existing centres of population, notably the larger settlements of Hartlepool, Redcar, Scarborough, Whitby and Filey.

Residential development can have a significant impact on groundwater resources. PPG12 “Development Plans and Regional Planning Guidance” states that particular attention should be paid to the protection of groundwater resources as, once contaminated, it is difficult to rehabilitate the resource. The Agency seeks to protect both

the quality and quantity of groundwater sources.

Major residential developments must be served by adequate foul drainage disposal facilities. PPG23 "Planning and Pollution Control" states that sewage disposal is capable of being a material consideration in the determination of a planning application. The Agency will advise LPAs where existing facilities are considered inadequate and encourage development to be phased in line with improved infrastructure provision.

**Table 1: Current status of development plans in the Esk and Coast area (at time of going to print)**

Local Authority	Title of Plan	Current Stage
<b>COUNTY COUNCILS</b> North Yorkshire	County Structure Plan	Adopted November 1980. 3rd amendment adopted October 1995. A new joint Structure Plan is to be prepared with City of York Council and the two National Parks starting in 1998.
<b>DISTRICT COUNCILS</b> Hambleton	Hambleton District Wide Local Plan	Following a Public Inquiry in 1996, the inspector's report has been received and modifications to the Plan will be placed on deposit in early 1998.
Ryedale	Ryedale District Wide Local Plan	A Consultation Draft went out for public consultation in 1995. A Deposit Draft version is expected in October 1997
Scarborough	Scarborough District Wide Local Plan	This plan will supersede the Scarborough, Whitby and Filey Local Plans and was subject to a Public Inquiry which was held between November 1996 and May 1997 and the inspector's report is expected in Spring 1998.
<b>NATIONAL PARKS</b> North York Moors	North York Moors Local Plan	This Plan was adopted in November 1992 but does not include the whole park area (Whitby, Helmsley and part of the former Cleveland County are not included). They will now go on deposit in Summer 1998 with the North York Moors Local Plan to form a park wide Local Plan.
<b>UNITARY AUTHORITIES</b> Hartlepool	Hartlepool Local Plan	A review of this Plan which was adopted in May 1994, has commenced with a view to producing a Consultation Draft in mid 1998.
Redcar & Cleveland (formally Langbaugh)	Redcar & Cleveland Local Plan	Following Local Government re-organisation, Langbaugh District is now known as Redcar and Cleveland Unitary Authority. A Public Inquiry was held in May 1997 and the inspector's report is due in Spring 1998.
Tees Valley Joint Strategy Unit	Tees Valley Structure Plan	The Strategy Unit are currently preparing the Consultation Draft which is expected in May 1998.

In addition to sites allocated for residential use in local authority development plans,



there may be opportunities for small scale infill development. In existing centres these should be connected to the public foul sewer. In outlying rural areas, this may not be feasible.

The Agency will advise LPAs on the suitability of private drainage arrangements. Septic tanks have the potential to pollute the water environment if not adequately installed and maintained. The Agency will request planning conditions on planning permissions, where appropriate, to ensure that the environment is adequately protected.

Within this LEAP area, there are a number of villages which have only rudimentary sewerage and sewage disposal facilities, resulting in pollution to local watercourses. The Agency is in close liaison with LPAs to ensure that development takes place in line with improvements to infrastructure. The Agency has developed pollution control zones to guide LPAs.

### Rural Development

Agricultural activities have the potential to pollute the environment. The Agency enforces the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 to ensure that new or substantially altered farm waste storage facilities comply with the defined standards. An important way in which this is achieved is through the planning application consultation process. The Agency will advise LPAs of measures required to ensure the risk of pollution to the environment is minimised.

The current restructuring taking place in agriculture has resulted in pressures for the diversification of agricultural activities. PPG 7 "The Countryside & the Rural Economy" advises of the need to accommodate employment-generating uses within rural areas. This usually takes the form of the conversion of redundant agricultural buildings and is generally small scale. The Agency seeks to be consulted on all such developments as these can impact on the environment, for example through changes to surface water run-off patterns because of the increase in hard surfaces and the increase in contamination from surface water run-off and sewage/trade effluent.

The Agency will advise LPAs on the suitability of any proposed foul drainage arrangements. New development in rural areas should generally be served by new or existing public foul sewerage systems rather than a proliferation of small private treatment plants or septic tanks. However, in isolated rural areas, for small scale development, private drainage arrangements may be acceptable. The Agency will impose conditions, as appropriate, to ensure that septic tanks or cesspools are installed with minimum impact on the environment. The Agency can issue discharge consents for disposal of effluent from private treatment plants under the terms of the Water Resources Act 1991.

### Industrial Development

Strategic guidance for industrial development, as set out in the County Council Structure Plan, aims to meet the needs of existing employers and the local workforce whilst recognising the need to protect the environment.

These days, most new industrial development tends to be allocated to existing centres. Much of the industrial and business development in the Esk and Coast Catchment area is light industry, distribution and services. These developments fall into Classes B1, B2 and B8 of the Town & Country Planning Act 1990 - Use Classes Order 1987 (as amended) and largely fall outside the Integrated Pollution Control regime. However, such development can have negative impacts on the environment.

Within the Plan area, there are also a number of major developments which are categorised as Special Industrial Uses (B2) under the terms of the Use Classes Order. These are operations which may be polluting or hazardous, including chemical and oil processing. Within the Esk and Coast catchment, provision has been made for development of land for Special Industrial Use within Classes B3 & B7 in South Hartlepool and Graythorpe areas (Hartlepool Local Plan).

In responding to consultations on these types of development, the Agency will advise LPAs on various aspects of hazard, pollution control and waste disposal. It will further advise of where an authorisation is required under IPC legislation and the likelihood of such an authorisation being granted.

Industrial developments can also result in contaminated surface water run-off which may find its way to local watercourses. The main sources of contamination are:

- the spillage of oils and chemicals;
- oil and petrol from hardstandings and storage areas;
- water used for vehicle washing.

The Agency will request planning conditions, where necessary, to ensure that hardstandings and parking areas are properly drained with oil interceptors or trapped gullies, as appropriate. Oil and chemical storage must be adequately bunded.

Provision is made for further development of sites which come into Classes B4 to B7 Special Industrial Uses of the Use Classes Order. This provision is made for development of sites at North Graythorpe, land west of Seaton Channel (Hartlepool Local Plan) and on land at North Tees to the east of the Seal Sands Branch Railway (Stockton-on-Tees Local Plan).

### Flood Risk Areas - DoE Circular 30/92 - Section 105 Surveys

It is preferable to avoid increased risk of flooding through the control of development

rather than to have to carry out works to alleviate problems once they occur. The relevant authority for controlling development in the floodplain is not the Agency but the LPA through the Town and Country Planning process.

Surface water run-off is likely to be increased to some degree as a result of development which includes areas of impermeable surfaces, such as roofs and pavements. The impacts of such development, however small, are cumulative and can lead to significant problems in due course. Increases in both the amount and rate of water reaching rivers if not managed, can lead to a greater risk of flooding. The Agency will seek to ensure new development is carefully located and designed. Where appropriate, it will require measures to control surface water to be incorporated into the overall development.

Local planning authorities and the Agency are required by the DETR, in Circular 30/92 (See Glossary) on "Development and Flood Risk", to liaise closely on flooding and surface water run-off matters. The aim is to ensure that the potential flood risks from a development are recognised and made an integral part of the decision making process undertaken by local planning authorities. Flooding and drainage issues are also to be taken fully into account during the preparation of land use development plans. In this respect, the Agency has a responsibility to prepare surveys under Section 105 of the Water Resources Act 1991, in order to define the nature and extent of flood risks. The priority of surveys was decided in conjunction with the LPAs. See 5.4 & 6.4.3.

### 5.1.2 INDUSTRY

#### Background

In many areas, some of the older traditional manufacturing industries are threatened by pressure from overseas competition and are experiencing severe cost pressure. This can result in the industries moving towards a smaller number of their more successful products with the abandonment of their less profitable lines. This is no less true of the smaller businesses developing on the light industrial estates, who typically employ small numbers of people without the large support structures of the traditional large employers.

The Teesside area was previously dominated by the iron and steel industries but it is now dominated by the chemical industries. Teesside is the biggest producer of special waste in the country.

Whilst most industries generally recognise and accept the need to maintain and improve their environmental performance, the majority are in situations which make significant financial investment in environmental improvement alone difficult to justify to their shareholders. However, many have environmental improvement programmes in place which are producing significant improvement on a longer timescale. In some cases, it is possible to reduce costs through improving environmental performance. It is now recognised by most developers that new plant construction must be carried out to high environmental standards.

The industrial activities regulated by the Agency within and immediately adjacent to the area include very large scale power generation and manufacture of chemicals. Pollutant releases from these Part A processes are permitted and regulated under Part I of the Environmental Protection Act 1990 (EPA90). These permissions are known as Integrated Pollution Control (IPC) Authorisations and include limits on the emissions which may be released to air, land and water and also improvement programmes which the operators are required to implement to improve their environmental performance.

Responsibility for overall air quality standard is broadly the responsibility of the Local authorities and is monitored by them using a variety of techniques.

### **Local Perspective**

In addition to local air quality monitoring, the DETR operates a national network of monitoring stations for air quality, none of which are located in this LEAP area. The nearest monitoring station is located in Leeds and results from such an urban location are not truly representative of air quality for this predominantly rural area. See 2.2 & 6.2.1.

The area is primarily rural, with pockets of industry in some of the towns. These are mainly in the form of light industrial estates. There are just two industrial processes in the area which are IPC Authorised and regulated by the Agency. These are Britmag at Hartlepool and British Steel at Skinningrove.

On Teesside, however, there is a concentration of industrial processes regulated by IPC Authorisations. Releases to the environment from these sites inevitably has some impact on the plan area, most especially air quality. See 2.2 & 6.2.1.

## **5.1.3 STORAGE AND USE OF RADIOACTIVE MATERIALS**

### **Background**

Radioactive substances are present in the environment as a result of both natural processes and of man's technological developments. The uncontrolled and incautious use of these substances can pose both immediate and long-term hazards. It is therefore important to the future of the environment that the radioactivity added by technological developments is limited and controlled. The properties of radioactive substances may now be harnessed in ways which, with the application of stringent control criteria, pose acceptable risks in relation to the benefits which they bring.

The role of the Agency is to combine an understanding of the hazards and their associated consequences with a detailed knowledge of how they can be eliminated or controlled and managed. The Agency seeks to apply this expertise to each of those situations the Agency regulates and promote the controlled and cautious use of radioactive substances so to protect the environment.



The range of premises using radioactivity is large and includes hospitals, universities, research establishments and many different industries, amongst them the various components of the nuclear industry. The types of wastes are equally diverse. They include those with low levels of radioactivity generated by industry and commerce and materials with higher levels, most often associated with the nuclear industry. The Agency is the sole regulator under the Radioactive Substances Act 1993, and administers and enforces the Acts provisions by issuing registrations and authorisations. Registrations are in respect of keeping and using radioactive materials, authorisations concern the accumulation and disposal of radioactive wastes. The Agency makes inspections to check compliance with the conditions contained in these permissions.

### **Local Perspective**

Within the Esk and Coast area, there are eight registrations for the keeping and use of radioactive substances and one authorisation for the accumulation and disposal of radioactive waste. Britmag in Hartlepool have a registration for process measurement. An authorisation in the South of the LEAP area is held by Scarborough Hospital. The hospitals authorisation allows the disposal of small quantities of radioactive waste resulting from patient care.

Hartlepool power station, operated by Nuclear Electric Ltd, comprises two Advanced Gas Cooled nuclear reactors with a combined output of some 1300 megawatts, which is a significant fraction of the UK installed capacity. The station's authorisations permit the disposal of small quantities of liquid and gaseous radioactive waste. The radiation doses which result from these disposals remain well below the recommended dose limits for members of the public. The Agency will continue to inspect and review the policy and practice of radioactive waste management at the station. The aim will be to examine the methods by which the station seeks to demonstrate that it employs the best practicable means across the range of operational and strategic issues of interest to the Agency.

Registrations in the area include crop flow measurement on combine harvesters, anti static devices used in vehicle paint spraying activities, density measurement devices and a lightening conductor. Lightening conductors using radioactive substances are soon to be phased out, following an assessment of the costs (environmental) and the benefits (the utility of devices of this nature). The justification for all other radioactive sources used in the area will also be revisited.

## **5.1.4 TRANSPORT**

### **Background**

The increasing use of the private car is having a significant detrimental effect on air quality in both urban and rural areas. While recognising that fundamental changes can not be made overnight, the Agency supports a change in travel patterns and the promotion of buses, trains and cycling as alternatives to private cars. Giving public

transport priority over cars in town and city centres would help to reduce journey time and increase the efficiency/reliability of services. Local authorities are the responsible body for transport issues. The provision of safe cycle routes and secure cycle parking can promote greater cycle usage. See 6.2.1.

### **Local Perspective**

The NYCC Structure Plan seeks to provide an adequate transport network, making use of existing facilities and, where necessary, providing new facilities. NYCC have produced Transport Policies & Programme bid packages for government funding for Scarborough and the North York Moors. The Agency will seek to encourage, through responding to planning consultations on these types of schemes and other development proposals, the provision of cycle ways where viable. See 3.3 & 5.1.1.

## **5.1.5 LAND USE, AGRICULTURE AND FORESTRY**

### **Background**

The landscape of an area reflects the complex interplay between the natural environment and man's activities. Geomorphology, geology, topography and drainage provide the basic elements of the landscape and, together with associated vegetation and settlement patterns, determine the essential landscape character of an area.

Whilst the Agency does not have direct responsibility for shaping land use policy, it must be recognised that the ways in which land is utilised will have an impact on the Agency's areas of responsibility. Forestry, agriculture, urban and industrial development all impact on the quality of water and air.

Sustainable development is seen as the cornerstone of Government land use policy.

The Agency will also seek to influence land use policy and practice through a number of routes:

- the planning process, as it is a statutory consultee for structure and local plans, as well as for certain individual planning applications;
- the authorisations and consents process; and
- through liaison with local planning authorities, other government agencies, industry, landowners and individuals. See 3.3 & 5.1.1.

Through the planning process, the Agency will seek to support redevelopment which may benefit the environment, such as on contaminated land.

While the Agency is well placed to influence some of the factors which impact on the environment through its regulatory powers, it has little control over the mechanisms which determine land use change. This is largely the responsibility of the LPAs through

town and country planning legislation.

The Agency has a duty to promote access to water, whereas the conservation of the landscape and the promotion of access to the countryside in England is the responsibility of the Countryside Commission. The Commission is empowered to designate, for confirmation by the Secretary of State for the Environment, National Parks and AONBs. In March 1996, the Commission launched its strategy for the next ten years, 'A Living Countryside', endorsing its commitment to a number of on-going and new initiatives. These include the 'Countryside Character Programme' which defines landscape character areas of the English Countryside (with English Nature and English Heritage); the Rural Action Programme (run jointly with English Nature and the Rural Development Commission); support for local authorities in protecting AONBs; the Community Forests Programme; continuing to advise on national planning policy issues and regional guidance. A significant part of the Countryside Commission's new strategy is its support for the Government's target of doubling England's woodland areas.

Forestry in Britain is controlled by the Forestry Commission (the Department of Forestry) which has recently been organised into the Forest Enterprise Agency and the Forestry Authority at both County and Regional levels. Forest Enterprise manages the state forest and woodland holdings of the Commission as a multi-purpose forestry resource with commercial and environmental targets. In contrast, the Forestry Authority sets standards for the forestry industry, including Forest Enterprise; provides grants for new and existing woodlands to assist the private sector; and ensures protection of woodland resources by administering tree felling and plant health controls. In recent years, the Forestry Authority has been advocating the preparation of Indicative Forestry Strategies to guide new woodland creation at a Regional level. See 5.5 & 5.6.

EC Directive 85/337 on environmental impact assessment states that projects which may have significant effects on the environment, for example because of their size or nature, must have an assessment of these effects. The Directive specifically includes initial afforestation where this may lead to ecological changes. The Environmental Assessment (Afforestation) Regulations 1988/1207 carry out the Directive's rules throughout Great Britain and are overseen by the Forestry Authority, (see Figure 6).

The current over capacity within agriculture offers unprecedented opportunities for the Agency to influence land use to benefit and improve the environment. Current agricultural support mechanisms are intended to limit production increases and various grant schemes encourage farmers to manage their land under traditional systems to the benefit of wildlife and the environment. Forestry schemes are grant aided by the Forestry Authority and the Woodland Grant Schemes encouraging the creation of new woodlands and good management of existing areas. However whilst incentives to plant small areas of trees (up to two hectares) are proving popular amongst some farming and landowning sectors, the grants available for larger schemes are not generally being taken up.

Of considerable interest to the Agency is the existing Set Aside Scheme and the MAFF Countryside Stewardship Scheme which targets the conservation and enhancement of some key landscapes, features and habitats and where appropriate improvements in public access to them. Such areas, once removed from intensive production, will hopefully serve to improve the physio-chemical and biological habitat of the watercourse through amelioration of diffuse pollution, erosion and sediment loss and habitat degradation.

### Local Perspective

The most important habitats for wildlife are those which have been managed in a traditional way, without disturbance, over a long period of time. Such habitats are referred to as semi-natural and include some of our best woodlands, grasslands, wetlands and moorland habitats. All of these habitats have declined in recent years. Moorland has been lost to forestry and been damaged by gripping or drainage.

The most ecological valuable woodlands are, generally speaking, the broadleaved woodlands. Such woodlands provide the richest habitat for wildlife but are declining, often being replaced by coniferous plantations which have less value to wildlife. The current uniform design of many plantation areas will gradually change as these forests mature and enter a felling and restocking phase. The application of the Forestry Authority's environmental guidelines, as a pre-requisite to felling permission, will ensure that a more diverse forest structure is created. The inclusion of more open habitats within the second-generation forests will help to ameliorate the exacerbating effects of trees on water quality in certain catchment geology situations.

The majority of the plan area is rural. The predominant land cover is heather moorland which provides sparse grazing for sheep. Along the valley bottoms, most of the land is improved pasture which is used for intensive dairy and sheep farming. However, there are some small areas of semi-natural grassland adjacent to the River Esk.

There are a number of extensive conifer plantations scattered throughout the catchment. In addition, there are numerous smaller areas of ancient semi-natural, broadleaved woodlands, many of which are sited in dale heads or on steep slopes.

Within the tidal reaches of the River Esk at Whitby, there is a small area of saltmarsh. Inland the area is predominantly agricultural, with improved grass and arable land which extends to the coast. Scrub and woodlands are the principal land cover in inaccessible areas, where the cliffs have slumped or coastal streams have cut steep sided valleys. In many cases, these woodlands extend many miles inland, forming an essential link between inland and coastal habitats.

Urban areas in the Esk Valley itself are generally small - the port of Whitby being the largest. Development along the coastline varies considerably from the highly industrialised and populated area either side of the River Tees, through moderately sized



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP LAND USE, AGRICULTURE AND FORESTRY

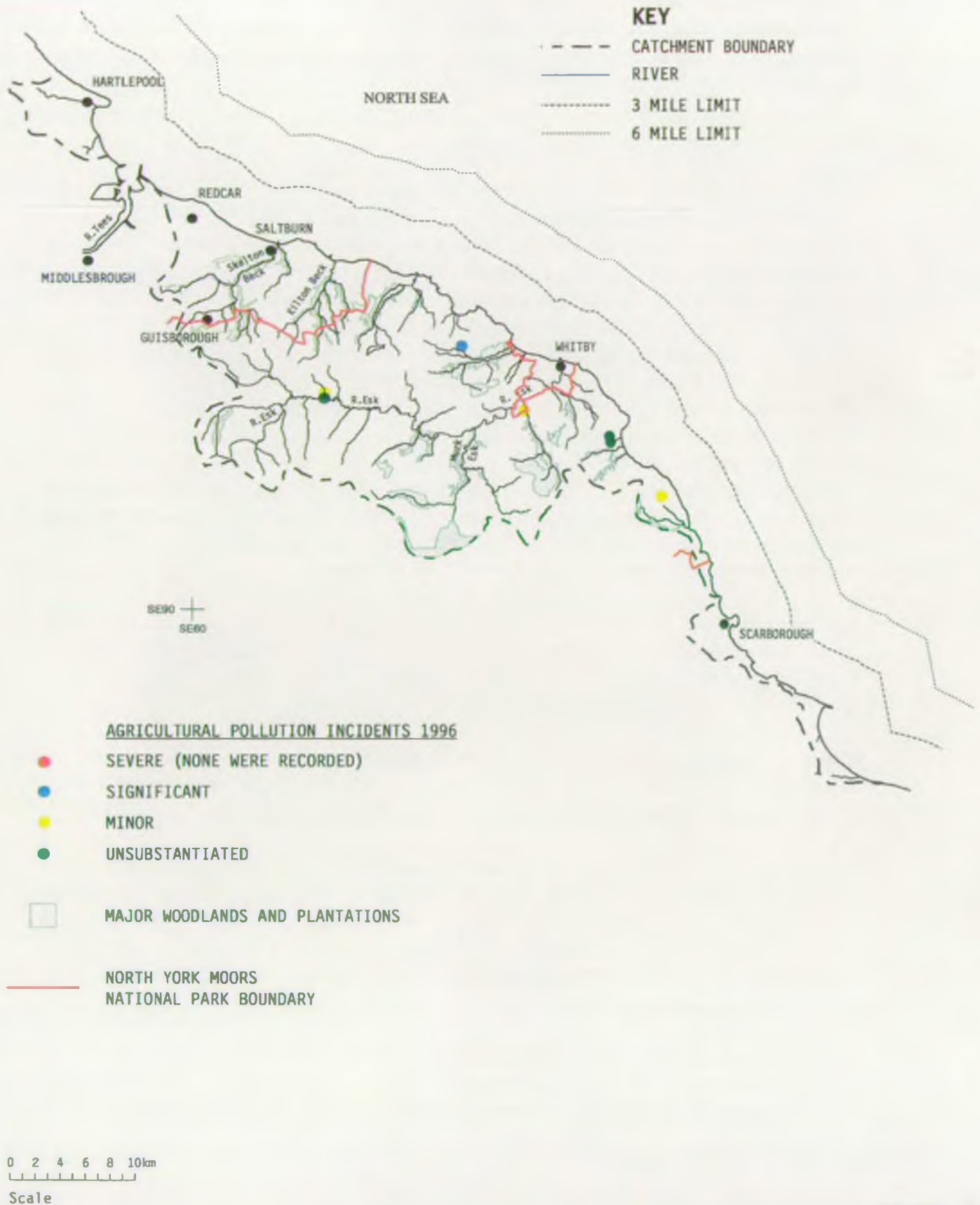


Figure 6

resort towns, such as Scarborough, to remote small coastal settlements (see Issue 12).

### 5.1.6 MINERAL EXTRACTION AND MINING

#### Background

Minerals are an essential component for meeting the needs of the community and promoting economic growth. It is nationally recognised that an adequate and steady supply of aggregates must be produced to meet the needs of the construction industry. National guidance contained in Mineral Planning Guidance Note 1 (MPG1) 'General Considerations and the Development Control System' requires each mineral planning authority to contribute to meeting the demand for minerals in their area.

However, there is a growing concern that mineral exploitation can have an adverse and irreversible impact on the environment. The Government is committed to the integration of the principles of sustainable development in mineral plans, as outlined in MPG Notes 3 and 6.

Mineral operations often have a particularly detrimental effect on the environment compared to other forms of activity. Mining and quarrying can affect the water environment due to the physical presence of a mine or quarry, dewatering or discharges from a site. Quarries can intercept run-off from surrounding areas thereby depriving surface watercourses of water or can intercept groundwater flow which may feed springs or support groundwater abstraction boreholes.

Dewatering at mines and quarries can affect groundwater flow which may then affect not only groundwater abstraction, but also springs and surface watercourses by reducing inflow and lowering the water table. See 6.4.1.

Discharges from sites can have an impact on receiving watercourses owing to the presence of high levels of suspended solids. This can choke the bed of a stream creating a poor environment for flora and fauna. Mining subsidence can also compromise local flood defences and the level of protection which they can provide. See 6.4.2.

When appropriately managed or planned, the presence of mineral workings is not necessarily incompatible with environmental protection. Some habitats are irreplaceable but, for others, mitigation or improvement by imaginative restoration may minimise adverse environmental impacts. Such restoration can provide recreational opportunities. They can also be designed to create diverse wetland habitats which may add significantly to the nature conservation resource and may help replace certain types of habitats lost from the floodplains. See 5.6.1.

The Agency is a statutory consultee on all planning applications for mining, quarrying and mineral extraction under the terms of the Town and Country Planning (General Development Procedure) Order 1995 and, as such, makes comments on these

development proposals to ensure that environmental impacts are minimised. The Environment Act 1995 introduces new requirements for an initial review and updating of old mineral planning permissions granted between 1948 and 1982, in addition to a periodic review of all mineral permissions thereafter. Many of these early planning permissions are subject to inadequate conditions and this new legislation gives the Agency an important opportunity to secure improved environmental standards at these sites. See 3.3 & 5.1.1.

### **Local Perspective**

Cleveland Potash Ltd at Boulby is the major mineral extractor in the Plan area. The original planning application was to sink two shafts to a depth of 1100 metres to access a seam of potash up to 5 metres thick. At present, the ore is extracted up to 3 km seaward from the coast. The developers have recently submitted an application to the North York Moors National Park Authority for an extension of their underground workings to the South of the existing mine in addition to an updated planning permission for the retention of their existing operations until the year 2022. The effluent discharge from the site is regulated by the Agency under the terms of the Water Resources Act 1991.

The Agency will continue to strive to protect the environment in the Esk and Coast catchment through its input into planning consultations and by direct discussions with mineral operators.

## **5.1.7 TOURISM**

### **Background**

Tourism makes an important contribution to the local economy and employment. The Agency recognises the value of tourism and seeks to ensure that it continues to make an effective and sustainable contribution to the growth and development of the local economy. Although the Agency has no direct role in the management of tourism, it realises its importance in this area and its potential for impacting on the environment.

The growth of tourism is largely influenced by available accommodation and facilities. The majority of services and accommodation is concentrated in settlements, especially the market towns and larger villages. Whilst favouring tourism development in these areas, it is recognised that many tourists want to be in the countryside and this is where the economic benefits of tourism are most needed. Strong safeguards will be applied in rural locations to ensure that development is acceptable in terms of its effect on the landscape, nature conservation, farmland and settlements.

The Government is encouraging farmers to develop alternative sources of income. Providing tourist facilities, particularly accommodation, can be an important form of diversification. The Agency will support these proposals provided they do not conflict

with the need to protect the countryside (see Issue 4).

### **Local Perspective**

The area is very popular with tourists, both from the local area and much further afield. Scarborough is the most popular individual resort in the plan area with extensive attractions - natural and man made. In 1996, approximately 2.2 million people visited the town.

Whitby retains many characteristics of an old fishing town, indeed the fishing fleet is still in evidence. The town is popular with visitors but on a smaller scale than its neighbour. Whitby received 667,000 visitors in 1997. Robins Hood's Bay, Runswick Bay and Sandsend have received Tidy Britain Group rural beach Seaside Awards for 1997. The rural beach category covers beaches with few facilities which are usually enjoyed for their natural environment. Dogs may be allowed on rural beaches and visitors are encouraged to protect the beach environment. Filey, Scarborough North Bay, Whitby West Cliff and Seaton Carew Foreshore all received awards as resort beaches under the Tidy Britain Seaside Award Scheme. The resort beaches actively encourage visitors, provide facilities and offer a variety of activities.

The development of the Hartlepool Marina complex is an added tourist attraction on the coast. Hartlepool has been emerging as a focus for boating and sailing interests and is attracting visitors from around Europe. Teesside Development Corporation (TDC) and Hartlepool Borough Council have had great success with the development of the Hartlepool Marina which includes extensive mooring for sailing and other ships. The Historic Quay and HMS Trincomalee (1817), Europe's oldest floating warship, are major attractions, together with shopping and retail outlets which broaden Hartlepool's appeal.

Inland, probably the greatest attraction for visitors to the area is the North York Moors National Park. The moorland is interspersed with small villages which attract visitors. The Park Authority operates a visitors centre in Danby which is also utilised by schools as a learning resource. The Park attracts large numbers of visitors from all over the United Kingdom and overseas visitors account for some 5% of the total. The greatest concentration of visitors to the Park during 1996 occurred in August. Inevitably such popularity creates pressures in the Park itself. This has led the National Park to develop a sustainable transport option, the Moorbus Network, which encourages visitors and locals to use the Moorbus rather than their cars.

## **5.2 WASTE MANAGEMENT**

### **5.2.1 SOLID WASTE DISPOSAL**

#### **Background**

Waste management activities may have a significant impact on the environment in a



number of ways unless they are suitably regulated. Some of these impacts can have long term and serious consequences whilst others may be of a lesser nature and can be quickly and effectively remedied. Some of the most significant potential problems include:

- the pollution of surface or groundwater;
- \* the uncontrolled escape of landfill gas;
- nuisance caused by litter, vermin, odour, dust, noise or vibration;
- the release of poisonous, harmful or polluting materials into the environment;
- the uncontrolled burning of waste;
- waste materials proving harmful to health;
- the contamination of land on which waste management activities have taken place;
- the blighting of land and the consequent effects on future development and land values;
- traffic pollution as waste is transported from the point of production to the point of disposal.

The Agency's principal role in directly protecting the environment from waste is through the regulation of waste treatment, storage and disposal facilities by way of a licensing supervision system. Under the Environmental Protection Act 1990 (EPA90), this system seeks environmental safeguards by setting standards by means of licence conditions, and involves the inspection and monitoring of licensed facilities to determine both compliance with licence conditions and environmental impact. This arrangement also enables the Agency to take appropriate enforcement action to ensure that these standards are met (see Figure 7).

Integrated Pollution Control regulates certain waste management processes including incineration and solvent recovery.

The Agency also has a waste planning role which is intended to ensure that the future disposal needs of an area are assessed and a forward plan developed.

A new duty to administer producer responsibility schemes was placed on the Agency by the Environment Act 1995. These schemes require industry to recover value from specified waste streams. The first scheme, implemented during March 1996, covered packaging waste. The Agency's role is to monitor and enforce the requirements. Intended schemes will address waste materials such as tyres and scrapped cars.

The main functions and activities of the Agency with regard to waste management are set out in Appendix A. There are a number of wastes which are not controlled by the Agency which are also set out in Appendix A. See 6.3 and Issues 6, 8, 13 & 14.

## Local Perspective

### Landfill Sites - 8 sites

There are four large landfill sites in the catchment operating for the disposal of municipal and/or industrial wastes; one in Hartlepool, two near Guisborough and one close to Mickleby.

In the North of the area, all household waste is handled by Cleveland Waste Management (CWM), a LAWDC established in 1995. This company operates a new waste to energy incinerator just outside the catchment in Stockton and wastes for the boroughs of Hartlepool and Redcar and Cleveland Councils are dealt with there. Incinerator residue is disposed of at the Carlin Howe Farm landfill site close to Guisborough operated by CWM. This site is also licensed to take a small range of commercial wastes but does not take any difficult or special wastes. The adjacent Thornton Fields landfill operated by Biffa is also licensed to receive incinerator residue but mainly operates to take commercial and industrial wastes. Both sites take wastes unsuitable for incineration and energy recovery or recycling from the local councils.

In the part of the area which lies within North Yorkshire, household waste disposal is the responsibility of YorWaste, the LAWDC established in 1993 by North Yorkshire County Council and the private operators of the Mickleby landfill site.

Mickleby, Carlin Howe Farm and Thornton Fields have taken and continue to receive degradable wastes and as a consequence they have the potential to generate landfill gas and leachate. Leachate emissions from Mickleby have been a problem in the past, and all three sites have generated significant levels of landfill gas. In the case of Carlin Howe Farm this is due to historic tipping. The site is relatively new, but the area currently being worked is over the top of wastes tipped in the 1970s. The operator has therefore, to some degree, taken on the responsibility for these older wastes and associated problems. The leachate collection and treatment system for the site will take some of the leachate generated by the old site. It is envisaged that landfill gas generated by the site will be utilised along with landfill gas from adjacent complete landfills and, possibly, the Biffa Thornton Fields site to produce electricity.

There are two producer-operated landfills within the area which dispose of wastes at, or close to, the point of production. Both of these sites are operated by British Steel (BSC) and are situated at Redcar and Skinningrove. They are both licensed for a limited range of wastes: in the case of Skinningrove, inert construction waste from building operations within the site. There is an ongoing problem at this site from the fly tipping of waste on an area of derelict land near to the landfill. This is within the factory curtilage but not on the landfill. The BSC site at Redcar takes a slightly wider range of wastes, including office wastes which are similar in nature to household waste.

There are two further landfills currently licensed within the catchment, neither of which

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP WASTE MANAGEMENT LICENCES

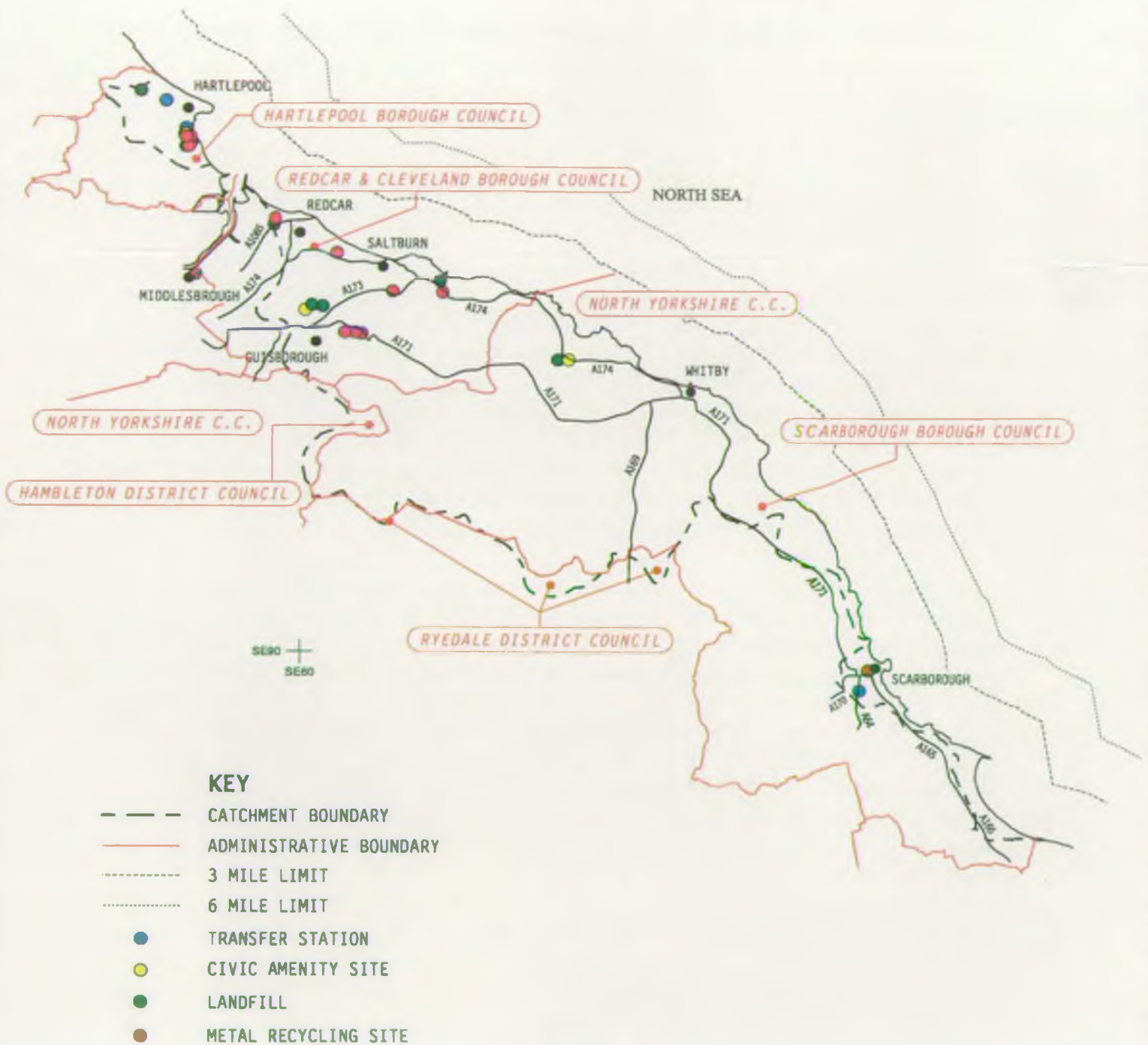


Figure 7



are currently operational. Both are only licensed to receive a restricted range of wastes from the construction industry. See 6.3 & Issues 6, 8, 13 & 14.

#### Metal Recycling Sites (Scrapyards) - 13 sites

The main environmental problem associated with scrapyards is caused by waste fluids in scrap vehicles - oils, hydraulic fluids and coolants - which have traditionally been allowed to drain into the ground. All operators are now obliged, under the terms of their Waste Management Licences (or exemption requirements where relevant), to collect these fluids. Operators must also submit schemes to concrete, or otherwise protect, the surfaces of sites used for potentially polluting activities and for the phased installation of sealed drainage systems and interceptor tanks, thereby preventing the discharge of contaminating fluids to ground.

All 13 licensed metal recycling sites within the area regularly receive monitoring visits from the Agency. These are all vehicle dismantlers who buy in scrap or damaged vehicles to use for spares. The remaining shells are sold on to scrap metal dealers who crush and shred them before passing the recovered materials on to the metal production industry. More forward looking operators are also identifying and separating plastics. Scrap metal dealers also receive scrap from small producers including the traditional rag and bone type merchants. There are six of these secondary metal processors in the catchment, one of whom, T Smith, operates a fragmentiser plant.

#### Waste Transfer - 8 sites

There are eight sites licensed for the transfer of waste in one form or another within the catchment. The introduction of the landfill tax is expected to increase workloads at these sites due to the economic benefits of pre-sorting waste into two categories, inactive and active. This would minimise landfill tax obligations.

The major issues of concern in such operations are the uncontrolled burning of wastes which reduces the operator's disposal costs and the infrequent clearance of degradable wastes, leading to problems with odours and vermin. This has been a problem with operations in the Hartlepool area where there are also a number of illegal transfer operations which the Agency is currently pursuing.

Five of the transfer operations in the area are in some way commercial operations. The other three are operated by British Gas, for bulking up materials from pipeline excavations; a Local Authority, for skips hired out to the public; and a hospital, for collecting waste from nursing homes in its trust area.

#### Incineration

It is envisaged that approximately half of the catchment's household waste will be disposed of by incineration at a modern waste to energy incinerator plant. This plant



commenced burning in the Summer of 1997 and is based outside of this LEAP area, in the Tees catchment. Household wastes arising in the administrative areas of Hartlepool Borough Council and Redcar and Cleveland Borough Council are transferred to this plant for incineration. Most of the calorific value is then recovered to generate electricity.

### Waste Movements

The area is a net importer of waste although some of the waste movements are quite complex. Municipal waste in the North of the catchment is transferred out of the area to be incinerated and the residue is disposed of within the catchment.

There are two main operators for commercial and industrial waste disposal: SWS Ltd in Hartlepool, which offers a range of waste handling services to businesses and recycles a large amount of waste through its transfer station and disposes of the residue in its landfill site; and Biffa Waste Services at Thornton Fields near Guisborough, which is a traditional landfill waste disposal site. Both facilities deal with waste from a large area extending beyond the catchment boundary. The Carlin Howe Farm and Mickleby landfill sites, although primarily for municipal wastes, take some commercial and industrial wastes. This is mainly from the construction and demolition industries. Mickleby is licensed to receive Special Waste including asbestos, mainly from the construction industry.

The smaller skip hire and transfer operators in the Hartlepool area operate collection and bulking up services for waste which arises inside and outside of the catchment. Most of this material is subsequently disposed of within the catchment.

The two British Steel operated landfill sites are solely for waste arising from adjacent operations. See 6.3.

### Unlicensed Activities

Certain activities, because of their small scale or lack of any perceived environmental hazard, are exempted from the waste management licensing regime. Organisations carrying out these activities are obliged to register with the Agency in order to subject them to a degree of supervision.

There are also people who operate illegally and the Agency endeavours to bring their operations within the law. The supervision of exemptions and enforcement action against illegal operations requires considerable amounts of the Agency's time and resources.

### *Registered Exemptions*

All registered exemptions within the catchment are subject to inspection at least once during operation so an assessment of their potential environmental impact can be made.

There is a problem with the type of activities which may or may not be exempted and the potential environmental impact of non-compliance. These range from the storage of packaging waste by the retail trade to large land filling or land raising operations. Licensed landfills are regularly supervised to check compliance over the types and quantities of wastes deposited. Waste deposits under the terms of exemptions are not subjected to the controls provided by the supervision and inspection regime but the consequences of the wrong sort of material being deposited can be as bad or worse than at a licensed facility.

One exempt activity which is of particular interest to the Agency is the spreading of waste on land. Currently, wastes arising from abattoirs, the food processing industry, cement manufacture, paper processing, septic tanks and biological treatment plants may be disposed of by application to agricultural land. This activity may only be carried out where there is a perceived benefit to the land. The rural nature of the Southern part of the area means that there is an abundance of land which has the potential to benefit from this treatment. Consequently this activity takes place on a large scale.

There is concern that deposits take place with insufficient control or supervision. Defining and assessing benefit to land is difficult as it is not always possible to assess land quality before the application of waste. The only control which the Agency can exercise over these deposits is to require the waste depositor to pre-notify the Agency of any intent to deposit, listing the type and volume of waste and the dates of the intended deposit. Typically this takes place at 20 or more locations within the area on an annual basis.

Annual deposits usually include the following:

- blood and guts from abattoirs, 5,000 tonnes;
- biological effluent treatment plant wastes, 2,000 tonnes; and
- food processing wastes, 2,000 tonnes.

The issue of BSE in cattle has raised the profile of abattoir wastes and made their disposal a more sensitive matter. The Agency therefore intends to scrutinise this activity in the future. See 6.3.1 & Issue 6.

### *Illegal operations*

Although most of the illegal waste deposits in the catchment are relatively innocuous in nature in terms of pollution potential, the consequences in terms of visual blight can be severe. Prior to the establishment of the Agency, the follow up of such illegal deposits was given a high profile in the South of the catchment area. With the establishment of a dedicated Enforcement and Surveillance Team in late 1997, the Agency will be able to utilise the skills it has assimilated to target those carrying, dealing or disposing of waste outside the law.

There is a general perception that the introduction of the landfill tax in late 1996 has led to an increase in fly-tipping nationally. Local authorities have a duty to clear small incidents of tipping. The Agency recently surveyed all of the councils in the Dales Area. It appears that fly-tipping has increased in the North of the area significantly, with Hartlepool Borough Council reporting an increase of over 25%. In the more rural parts of the area, there has been less change, with some authorities reporting no increase at all. One possible future issue which was raised as a result of the survey was the fly-tipping of bonded asbestos. Previously this was regarded as relatively harmless but the revised Special Waste Regulations in 1996 made all asbestos Special Waste. As such, the costs of disposal have greatly increased. See 6.3.1 & Issue 8.

### Contaminated Land

In areas of industrial development, patches of contaminated land are left behind. In the North of the plan area, much of the contaminated land is on industrial sites which are still operating.

The area around Guisborough has historically been used for ironstone mining and this land was later partly filled with household wastes. This activity began prior to the licensing of waste management facilities. As a consequence, this land is partially contaminated. In an attempt to remediate the effects of this historic tipping, a further waste management licence has been granted for the disposal of household waste on and adjacent to this land. The licence holder, Cleveland Waste Management, has therefore taken some responsibility for the pollution of the site and will be controlling it along with the leachate and landfill gas generated by current disposal operations. At a future date, landfill gas produced on this site may be combined with that produced on the adjacent (closed) municipal tip at Dunsdale and the Biffa Thornton Fields site to generate electricity.

The Agency is soon to take over some responsibility for the assessment and in some cases, the remediation of areas of contamination. The onus will remain upon the Local authorities to identify and ensure the remediation of contaminated sites and draw them to the attention of the Agency and the landowner. Certain areas of land will be classified as 'Special Sites', the criteria for which is yet to be finalised. Special Sites will be the responsibility of the Agency.

### Recycling and Waste Minimisation

The government's White Paper, "Making Waste Work", established the principle of the Waste Hierarchy and set a number of targets for controlled waste. See Issue 7.

#### *Recycling*

All of the Local authorities in the area have their own schemes for recycling or reducing household waste arisings. "Making Waste Work" set targets for recovering 40% of municipal waste by 2005 and recycling or composting 25% of household waste by 2000. Local authorities are finding that recycling has a net cost as the resale price of the

materials does not cover the cost of collection. Kerbside collection schemes can be prohibitively expensive, especially in rural areas, and, for this reason, many authorities have explored other options, such as mini-recycling centres in villages and home composting schemes.

Hartlepool Borough Council has experimented with kerbside collection schemes for some household recyclables and has recently tried composting of household wastes. The council has a central recycling depot linked to its civic amenity facility which recycles materials delivered to the site and to smaller recycling centres around the borough. In addition, waste delivered to council skips placed for communal use across the town is sorted and partly recovered by a local waste management company. The borough currently recycles about 5% of municipal waste arisings.

The most recent figures show that Scarborough Borough Council recycles about 11% of its municipal waste arisings, mainly through an extensive network of over 50 mini-recycling centres located throughout the borough. In addition, the council has a composting operation for park and garden waste which takes over 7000 tonnes a year which is then sold on through garden centres. The council has also looked at agricultural outlets for this material.

Redcar and Cleveland Council has for financial reasons given recycling a low priority and, as a consequence, recycling of municipal waste is less than 5%. There is a network of bottle and paper banks throughout the borough and the council has a small collection and bulking up facility for recyclables at its depot in Redcar. See 6.3.1 & Issue 7.

#### *Waste Minimisation*

The Agency has recently been carrying out an exercise in the catchment with the Environmental Technology Best Practice Programme (ETBPP) to raise the awareness of waste minimisation. A waste arisings survey identified a high level of interest from local firms in reducing their wastes. As the first stage of establishing a waste minimisation club in the area, a number of small and medium sized enterprises (SMEs) were given an Agency assessment of waste production and energy use, followed by a free session with ETBPP's consultants. This culminated in advice and a confidential report on the potential for the company to save money by implementing a waste minimisation programme. This process is ongoing and it is expected that a waste minimisation club will be established on the same lines as those elsewhere in England.

## **5.2.2 EFFLUENT DISPOSAL**

### **Background**

The disposal of effluents from industry, sewage treatment works, sewerage systems and agriculture can have a significant impact on the quality of the receiving waters, particularly when treatment is inadequate or dilution is low.



The Agency is responsible for the protection of "controlled waters" from pollution. Controlled waters include rivers, canals, estuaries, coastal water and groundwater.

Effluent discharges are controlled by consents and authorisations which impose conditions to regulate the quality and quantity of the discharge. Conditions are set taking into account the upstream water quality, the dilution available and the quality required downstream to achieve the desired Water Quality Objective.

The Agency uses two principal schemes for the reporting and management of water quality: the General Quality Assessment (GQA) scheme and the Water Quality Objectives (WQO) scheme which it is hoped will soon to be made statutory (see Appendix D).

The Agency continually reviews discharge consent conditions to ensure that objectives will be met. Such reviews may result in the variation of a consent or authorisation. When setting new conditions, the Agency needs to specify a reasonable and practicable timescale for the discharger to carry out required improvements.

The Agency monitors water quality at a network of sampling points which are targeted to provide an accurate classification. Effluent discharges to water are monitored to ensure that dischargers comply with the conditions of their consents or authorisations.

The Agency has responsibilities under the 1991 Water Resources Act to deal with oil pollution in tidal waters within the three mile limit. Historically the role of the Agency has been largely consultative and advisory rather than operational. The Marine Pollution Control Unit (MPCU) has more usually undertaken operational responsibility for dealing with oil at sea and Local authorities have cleared up the oil when it reaches the coast. The Agency may be involved in assisting local authorities in clean-up operations or in working with other environmental protection groups in discharging its recreational and conservation duties.

The Agency is responsible for preventing, where practical, the upstream spread of oil spills from estuaries on incoming tides. To do this, each Agency Region has assisted in the production of a local Oil Emergency Plan in consultation with the MPCU, MAFF, Fire Brigade, Local Authorities, HM Coastguard and other environmental bodies. See 6.4.2 and Issues 10, 11 & 12.

### **Local Perspective**

YWS and the NWL supply drinking water, dispose of sewage, maintain sewerage systems and maintain public registers of drinking water quality within the plan area. This is with the exception of the town of Hartlepool where the drinking water is supplied by Hartlepool Water Plc.

The most significant sewage effluent discharges inland to controlled waters are at Danby,

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP SEWAGE AND TRADE DISCHARGES

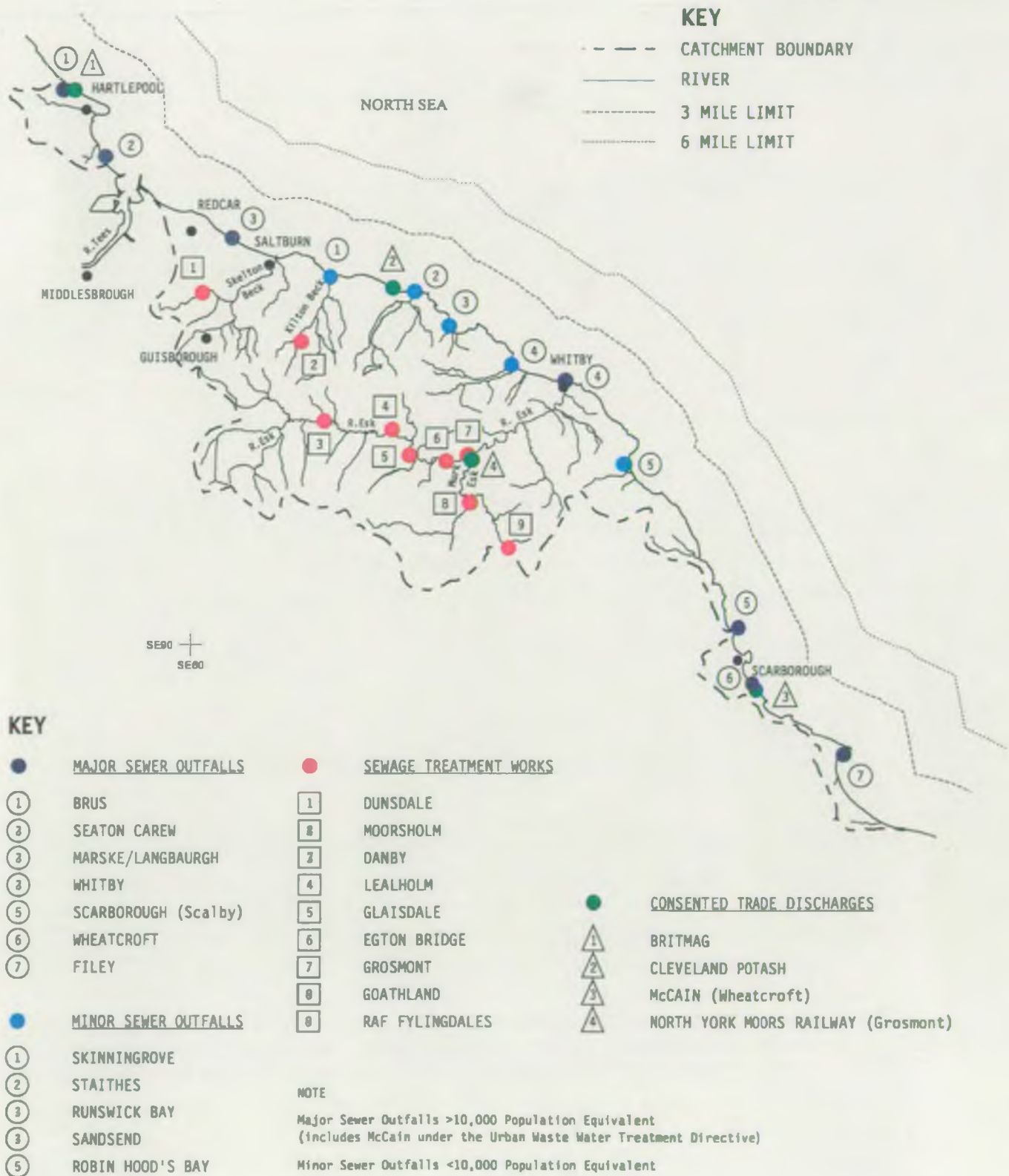


Figure 8



Lealholm, Egton Bridge, Glaisdale, Grosmont and Goathland. The works are well maintained and generally do not cause any water quality problems. However improvement works are planned at Danby and Goathland. Goathland in particular suffers a large increase in flow during the Summer due to the popularity of the area as 'Heartbeat Country'. Modifications to the operation of the sewage treatment plant at Goathland have enabled the works to manage the increased summer population, but YWS intend to install tertiary treatment to ensure that the plant will continue to produce an acceptable effluent.

Pollution emanating from the premature operation of combined sewer overflows or by the wrong connection of effluent to public surface water sewers is limited in the area. Public surface water sewers are designed to transmit uncontaminated rainwater direct to watercourses.

There are no major industries in the Esk Valley and only two small trade effluent discharges are made within the catchment: a surface water discharge from the North York Moors Railway to the River Esk at Grosmont and a surface water discharge from RAF Fylingdales to a tributary of the Murk Esk. These discharges have no measurable effect on water quality.

The coastal catchment has main centres of population at Filey, Scarborough, Whitby, Redcar, Saltburn and Hartlepool. Historically sewage from these towns has discharged to the North Sea through short outfalls with limited screening or maceration of solids. This practice is now being eliminated.

Long sea outfalls with preliminary treatment have been installed by NWL at Seaton Carew and Marske and by YWS at Scarborough South Bay (Scalby) and at Cayton Bay (Wheatcroft). Investment so far has concentrated on achieving compliance with the Bathing Water Directive at 19 EC designated bathing waters along the coast. In the future, significant additional investment will take place to satisfy treatment standards prescribed by the Urban Waste Water Treatment Directive (UWWTD) (see Appendix C).

In the plan area, there are seven outfalls serving populations greater than 10,000, and a number of outfalls serving smaller populations. One major outfall will be eliminated in early 1998 when the flow to the Brus outfall is diverted by NWL to Seaton Carew. The remaining six major outfalls will require a minimum of primary treatment by the end of the year 2000 to satisfy the UWWTD.

The exact level of treatment required at major outfalls in the longer term will be decided by the outcome of comprehensive studies being carried out by both NWL and YWS. These studies will decide whether the High Natural Dispersion Area (HNDA) adjacent to the outfalls is justified. If the status is withdrawn, secondary treatment will be required within seven years.

Discharges of sewage from populations of less than 10,000 will receive 'appropriate

treatment' by the end of 2005. Guidance is awaited from the DETR on the criteria to determine appropriate treatment.

YWS recently announced their 'Coastcare' scheme. Under the scheme, the company intends to install biological sewage treatment with ultra-violet disinfection on the three major sea discharges at Whitby, Filey and Scarborough - a move exceeding UWWTD statutory requirements. Additionally, YWS are looking to improve minor discharges of sewage to the North Sea at Robin Hood's Bay, Sandsend, Staithes and Runswick Bay by the end of the year 2000. Recent bathing water failures at Robin Hood's Bay, Sandsend, and Staithes have been attributed to the sewage discharges and/or the freshwater inputs from adjacent coastal streams such as Kings Beck at Robin Hood's Bay and Staithes Beck. YWS and Scarborough Borough Council have carried out works to reduce the bacterial content of Staithes Beck. The frequency of spills from combined sewage overflows has been reduced, wrongly connected domestic sewage into surface water drains have been remedied and sewer and outfall repairs have been carried out. Similar work has been conducted on Kings Beck at Robin Hood's Bay where comparable problems are known to exist.

On the coastal streams, there are only two STWs serving populations of greater than 250 population equivalent, Moorsholm and Dunsdale. However there are many works serving smaller populations though the effects of these discharges are generally localised. A short stretch of Kilton Beck at Skinningrove is downgraded by minewater deposits from former iron ore workings.

The companies, Britmag at Hartlepool, Cleveland Potash at Boulby and McCain International at Scarborough make significant discharges to the North Sea. Britmag have 8 consented outfalls discharging effluent which is generally of good quality and has little impact on the water environment. This site is regulated under IPC.

Cleveland Potash have a major outfall discharging to the North Sea via a sea bed pipeline. The company are carrying out a feasibility study to look at alternative methods of effluent disposal.

Over recent years, monitoring requirements for the Boulby development have increased and are co-ordinated by the Boulby Monitoring Group, which is made up of representatives from the company, the Agency, Zeneca and MAFF. In addition, there is also an Annual Monitoring Review Group consisting of representatives from the company, the Agency, Zeneca, MAFF, North York Moors National Park Authority, English Nature, North Eastern Sea Fisheries Committee and the relevant District Councils. This group meets to discuss the outcome of the annual surveys and monitoring results.

McCain International discharges potato processing effluent to the North Sea via a YWS sea outfall at Wheatcroft, south of Scarborough. McCain have recently installed a primary treatment plant on their site to pre-treat the effluent prior to discharge to sea and



YWS have recently commissioned a new 2km long sea outfall pipe replacing a much shorter outfall. The short sea outfall will be retained to carry storm sewage flows from the Wheatcroft sewage pumping station, following improvements to the sewerage system to reduce the volume and frequency of spills. This work should greatly improve the water quality of the Scarborough South and Cayton Bay bathing waters (see Figure 8).

### **5.3 SURFACE WATER AND GROUNDWATER ABSTRACTION**

#### **5.3.1 SURFACE WATER ABSTRACTION**

##### **Background**

Abstraction of water for potable, industrial or irrigation purposes is an important use of the surface water resource. Abstractions affect the watercourse immediately downstream by reducing the volume of water. In order to fulfill its duty to ensure that the water resource is managed effectively, the Agency operates a system of abstraction licensing.

An abstraction licence specifies a number of different factors, including the total hourly, daily, and annual quantities which can be abstracted. Conditions may also be imposed on the licence in order to protect downstream abstractions, other uses, the quality of the water environment and 'in river' needs.

The Agency endeavours to balance the needs of the abstractor and the environment. See 6.4.

##### **Local Perspective**

Within the Esk and Coast plan area, the majority of surface water abstracted is used for public water supply. The largest abstraction is made by YWS at Ruswarp. This abstraction is licensed for 7,823 thousand cubic metres per annum (TCMA) and accounts for 66% of the volume of surface water that is currently licensed for public water supply within the catchment. It is used in the Malton supply zone, with Whitby as the main centre of demand. In addition to this abstraction, YWS also abstract water from springs at Baysdale, Westerdale Moor and Hazlehead.

The largest reservoir in the catchment is at Scaling Dam on Roxby Beck. It flows into the North Sea at Staithes and is operated by NWL. The reservoir is used to supply the coastal towns in the North.

Britmag abstract coastal water for industrial purposes in the Hartlepool area. Under the terms of the Water Resources Act 1991, this abstraction does not require a licence. See 6.4. and Figure 9.

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP SURFACE AND GROUNDWATER ABSTRACTIONS 1997

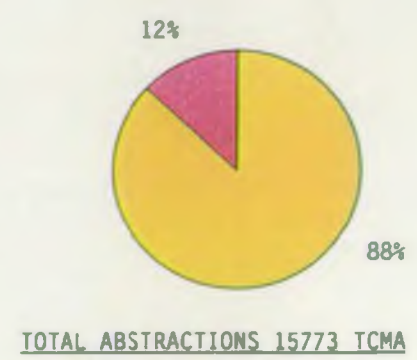
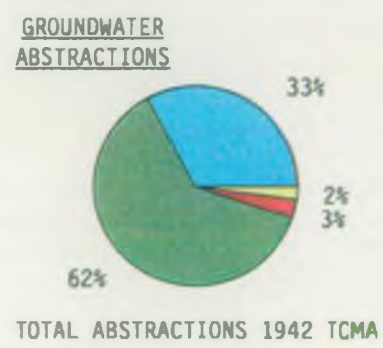
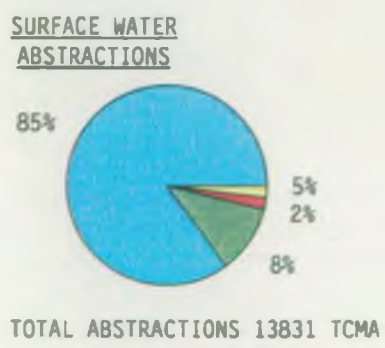


Figure 9

### 5.3.2 GROUNDWATER ABSTRACTION

#### Background

Groundwater abstraction relates to the abstraction of water from underground saturated rocks known as 'aquifers'. Aquifers may provide storage for considerable volumes of good quality water which often requires little treatment prior to use. Consequently, one of its most important uses is for drinking water supplies. In addition to potable supply, it is also used for a number of other purposes including cooling, food processing, bottling and spray irrigation.

The management of groundwater resources is achieved through granting licences under the Water Resources Act 1991. The quantities of water that may be abstracted are specified as a part of the licence which may also include conditions designed to protect the water environment. The Agency has its own guidelines for the technical determination of groundwater abstraction licences. In addition to checking that there is sufficient available resource to support a new abstraction or a proposed increase in abstraction, the guidelines require an assessment to be made of the potential impact of the abstraction on rivers, existing abstractors and other water dependent features. See 6.4.1 and Figure 9.

#### Local Perspective

There are many minor aquifers in the form of limestone and sandstone horizons. However, a large proportion of groundwater abstraction takes place from springs. These occur where the limestone and sandstone outcrop on hillsides.

There are 91 licensed spring supplies in the plan area. These accounted for 76 % of the total number of licensed abstractions in the catchment in 1997. With the exception of a few spring supplies that are used for public water supply, the dominant use of these springs is for domestic and agricultural demand in the more rural areas of the Esk and Coast plan area.

Licensed borehole abstractions, of which there were 22 in 1997, are used for a variety of purposes. Prior to 1992, there were no spray irrigation licences from groundwater sources in the Esk and Coast area. However, since 1992, 2 new licences have been granted for this purpose.

Certain categories of abstraction, mainly those used solely for domestic purposes, do not require an abstraction licence and are therefore classed as exempt abstractions. It is likely that there are numerous exempt boreholes and spring abstractions within the area. The Agency needs to be aware of the existence of these sources of supply in order to protect their right to abstract. As a result of this exemption, the Agency does not hold a full record of all of these sources of supply. See 6.4.1.



## 5.4 **FLOOD STORAGE AND FLOOD DEFENCE**

### **Background**

The river network carries surplus water from the land to the sea as part of the natural water cycle. Rivers and watercourses can only cope with a certain maximum flow and when this is exceeded flooding occurs. Flooding can be caused by prolonged rainfall, thunderstorms, rapid snowmelt or, more typically, a combination. The peak flow of a flood is measured and expressed in terms of the frequency at which that flow is statistically likely to recur, for example 1 in 10 years, or a 10% chance in any one year.

When a watercourse floods, the excess water flows into a floodplain. These natural floodplains, which are as much a part of the river system as the channel which carries normal flows, provide extra capacity for the storage and passing downstream of flood water. This capacity is reduced if significant areas of floodplain have been raised, embanked, or built upon. This loss of storage volume can lead to higher river levels elsewhere and for this reason it is not possible, or desirable, to alleviate flooding in all areas. The priority for flood alleviation lies in urban areas because undeveloped floodplains should be allowed to fulfill their natural role. See 6.4.3 & Issue 5.

A key aim of the Agency is to provide effective protection for people and property against flooding from main rivers and the sea and to provide adequate arrangements for flood forecasting and warning.

### **'Main River'**

All watercourses are classified as either main river, which is defined on maps held by the Agency and MAFF or 'ordinary watercourse', sometimes referred to as non-main river. Broadly the term 'main river' includes all watercourses which contribute significantly to a catchment's drainage though ordinary watercourses may be more significant locally. The legislation dealing with main rivers is the Water Resources Act 1991 and is supplemented by local byelaws. The Agency supervises all flood defence matters but it has special powers to carry out or control work on main rivers and sea defences.

Local Authorities, and in some areas Internal Drainage Boards are also responsible for protecting the coast from erosion by the sea. The appropriate legislation relating to ordinary watercourses is found in the Land Drainage Act 1991. There are no Internal Drainage Boards operational in this LEAP area.

Proposed revisions to the main rivers are dealt with through a consultation and advertising process with the decision whether or not to 'main' a river being made by MAFF.

MAFF is the government department with overall policy responsibility for flood defence and coastal protection in England. Grants are provided from central government funds



for flood warning and the improvement of flood defences by drainage authorities. In addition, MAFF initiates and funds research and development and provides advice on flood defence matters.

Within this plan area, consideration will be given to making recommendations to MAFF for enmaining significant watercourses identified by the Section 105 Surveys, provided that the following criteria are met:

- 'Main river' lengths will be continuous between the upstream and downstream limits;
- individual reaches of less than one kilometre should not be 'mained' unless considered essential;
- the upstream limit should be determined by the furthest upstream point of any of the following:
  - a) culverted watercourse with a catchment area greater than 0.5 square kilometres,
  - b) a river crossing, eg a main road, canal, railway with property, indicated in orange on the 1: 50, 000 figures, directly upstream of the crossing.

The Agency's consent is required for works on or near the bank of a main river. This includes construction in, over, under or within eight metres of the watercourse on activities such as the planting of trees and mineral extraction. The local Land Drainage Byelaws also give some protection to the floodplain of main rivers. On ordinary watercourses, consent is only required for building any structure that would affect the flow. These powers are used to ensure that people both upstream and downstream of the proposed works are not exposed to an increased risk of flooding.

Access along river banks for Agency staff and equipment needs to be preserved wherever possible especially for emergency works. To ensure this access is kept clear, the Agency shall not grant a consent to any development within eight metres of a main river watercourse which would compromise flood defence work activities.

In deciding whether to issue a consent, the Agency shall also take into account whether the proposed works conserve and enhance the environment (see Figure 10).

#### Reservoirs Act Supervision

The supervision of large non-natural bodies of water is laid down under the requirements of the Reservoirs Act (1975). There is a duty to register water bodies which could hold over 25,000m<sup>3</sup> above the lowest adjacent ground level as reservoirs and to ensure that reservoirs have a safety inspection by a qualified engineer twice each year. No reservoirs have been registered by the Agency within this LEAP area.

#### Water Level Management Plans

Recent guidance has been issued by the government on the preparation of Water Level Management Plans for Sites of Special Scientific Interest (SSSIs) and other areas of high

ecological or landscape importance. Where the Agency is the lead authority, it will liaise with English Nature to prepare a plan to ensure appropriate key water levels are safeguarded.

#### Operations and Maintenance

River control structures generally control water levels upstream but can be adjusted to allow storm water to pass downstream. The Agency and its predecessor organisations have constructed a significant number of gates, weirs, pumping stations and other such structures to complement river channel improvements.

Privately owned structures are common on watercourses for a variety of traditional water uses; such as the operation of mills, creation of navigation channels, fish farming and amenity.

#### Routine Maintenance Regime

The Agency does not own watercourses, except in a few specific locations where flood defence structures have been constructed and their ownership retained. The ultimate responsibility for the upkeep of a watercourse rests with the person who owns the land on the side of the river, the riparian owner. Additionally, owners must not permit an obstruction of the natural flow without consent.

The Agency has permissive powers on main rivers, to undertake works and exercise its authority according to available resources and priorities. Regular maintenance is essential if the river system and sea defences are to operate properly at times of high water levels. Such maintenance works include vegetation control; repairs to earth embankments and other flood walls, obstruction and blockage removal; and dredging. In order to assist in the justification and prioritisation of maintenance works the Agency is developing a Flood Defence Management Manual and a computerised Flood Defence Management System. Maintenance can contribute significantly to reducing the risk of flooding.

All maintenance operations are carried out in ways that are sensitive to the environment with every opportunity taken to further conservation.

At times of heavy rainfall the Agency operational priorities are to check and operate water level control structures and where possible to clear debris and identified obstructions.

#### Improvements

The Agency can build new flood defences only if flooding is a serious problem in a particular area. The Agency usually only builds new defences to protect built up areas from flooding. All schemes must be technically, economically and environmentally sound. The Agency keeps a list of schemes known as Programme of Capital Works which helps it to plan for the future.

### Duty of Care for Conservation

All new schemes and maintenance works are carried out in an environmentally acceptable manner. Under the legislation, three main areas have to be considered, namely to take into account the impact of proposals on natural features, to have regard to protecting features of historic interest, and to further the conservation and enhancement of flora, fauna and other natural features.

Some examples of recent changes to maintenance procedures which aim to benefit the environment whilst still meeting the requirements of flood defence are: the change from poisoning to trapping vermin; the change in timing and frequency of bank mowing; greater use of natural materials for erosion protection and use of waste materials for conservation projects.

In all cases, close liaison is maintained between the Agency and conservation, fishing and amenity organisations, and farmers or other landowners, to ensure that the benefits of maintenance work are spread as widely as possible.

### Flood Warning Responsibilities

It should be recognised that irrespective of attempts to minimise the risk from flooding through the implementation of various policies and actions, flooding can occur and on occasion represents a risk to human life. With regard to public safety, the Agency operates a flood forecasting service along the coast of the plan area, which uses tide level data from a number of sites, along with forecast data from the Meteorological Office's Storm Tide Warning Service.

The Agency uses a network of telemetry stations providing data on river and tide levels and rainfall. These stations alert staff when risk conditions occur and warning and operational procedures are carried out according to laid down instructions. The RTS network is constantly being updated to service the needs of different functions of the Agency. Data from the RTS is used by the River Flow Forecasting System (RFFS) during flood events to forecast river flows and levels. Based on forecasts produced, and observed levels, warnings are issued to areas at risk of flooding.

Flood warnings are issued in accordance with a national colour coded system. The ascending level of warning statements, yellow, amber and red, indicate the anticipated severity of flooding.

The Agency will continue to refine and improve the Flood Warning System. The emphasis will be to focus warnings to high risk and to define the extent of potential flooding. Localities protected by flood alleviation works, but at risk from an exceptional flood overtopping the defences, will also be incorporated into the flood warning procedures.

Since September 1996, the Agency has taken the lead in making sure that flood warnings get through to the people actually at risk. Arrangements are agreed in consultation with

local authorities and the emergency services. Annual flood warning seminars are also held to review the effectiveness of the flood forecasting and warning process.

#### Flood Warning Standards of Service

In order to ensure that timely warnings are issued to the right people, the Agency operates a system of Flood Warning Standards of Service. It is our aim to provide a two hour warning of commencement of flooding wherever practicable. See 6.4.3.

#### Emergency Response

At times of high water levels, in addition to its flood warning role, the Agency patrols the defences, operates flood defence structures, removes blockages and carries out any emergency repairs needed.

Local authorities have permissive powers to offer assistance during floods. This may include placing sandbags, moving possessions and evacuating people. Each authority has a different policy on the type and amount of help it gives.

The fire services provide help in flood emergencies if they are able to do so. The local station will be able to advise the public on what help is, or is likely to be available and whether or not a charge will be made.

The County Council is responsible for public highways and would deal with any flooding problems associated with road drainage. All County Councils have Emergency Planning Officers who may become involved in more serious flood events (see Figure 10).

#### **Local Perspective**

The exposed moorland hills in the upper part of the Esk catchment are very steep giving rise to a rapid response to storm rainfall and an unusually high proportion of rain becoming flood flow. The result is a river subject to rapid changes in flows. Normal flow over the weir at Sleights is below five cubic metres per second (cumecs) this rises to a flow of over 350 cumecs in the worst storm conditions.

The relatively steep gradient, surge flows, and the nature of the land forming the river banks promotes river bank erosion. This is a common feature of the agricultural land bordering the Esk for much of its length.

Generally, the banks of the Esk remain natural and have not been modified to protect land from flooding. Where engineering works have taken place, these have invariably been carried out to support development of land alongside the river, particularly the railway line which closely follows the river and frequently crosses it. Other structures protect roads and bridges from erosion and there is a major water mill weir at Ruswarp.

The major flood recorded on the Esk this century occurred in 1930 and resulted in one death and the destruction of several bridges. Flood water of up to six feet in depth was



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP MAIN RIVER AND FLOOD RISK AREAS



Figure 10

reported. It appears that the flooding may well have been caused by trees and other debris accumulating in bridge openings. These formed partial blockages and led to failures of the bridge and the release of a destructive wave of water and debris that progressed to the next bridge.

No flood warning service is currently available for the River Esk. However, new river level monitoring stations have been identified in the upper and middle reaches of the river, and it is the Agency's intention to introduce a flood warning service by 1998. No operational work is carried out on the River Esk or along the coast in times of flood, apart from reading gauge boards and patrolling the possible extent of flooding.

Flooding from North Sea tidal surges are a feature of this coastline - the flood of 1953 was the most severe this century. This flood serves as a benchmark for land use planning and development in the coastal zone. Based on data provided by the Meteorological Office Storm Tide Warning Service, the Agency now provides warnings in advance of surges combined with the high spring tides. North Sea surges, in combination with high tides, continue to cause serious flooding of property in the Tees Estuary, Whitby's Inner Harbour, South Bay in Scarborough, Robin Hood's Bay, Sandsend, Staithes, Runswick, Skinningrove and parts of Redcar. The Marine Drive at Scarborough floods several times per year and has to be closed to traffic. Large areas of Hartlepool are below extreme tide levels but these are protected by a substantial sea wall.

Elsewhere on the coast, high cliffs predominate and there is no substantial flood risk to properties. In several places these cliffs are eroding significantly. Cliff erosion is the responsibility of the respective landowners or the local coastal Authority, supported by MAFF. It is normal for the Agency to be consulted on coastal defence schemes and the Local Authority is particularly interested in the movement of sediment from an eroding cliff to other parts of the coast. An overview to such processes is provided by the MAFF /Welsh Office Coastal Defence Forum, established to provide a National forum on coastal defence, including sea defence and coastal protection matters.

Locally, the coastal cell from Flamborough to the Tyne is covered by the North East Coastal Authorities Group consisting of local authorities, harbour authorities, the Agency and other agencies. The aim of the group is to ensure a co-ordinated approach to all coastal engineering work and related matters between neighbouring authorities within this coastal section. In this plan area, Scarborough Borough Council is the lead authority for the production of such a Shoreline Management Plan. See Issue 5.

Flood protection schemes have been identified for consideration after the year 2000 at Redcar, Whitby and Ruswarp. Several properties in these three locations are known to be at risk from flooding and investigation into the feasibility of improving the standard of defence, along with any effects on the local environment will require careful consideration.

The Agency uses an Automatic Voice Messaging (AVM) system as the main means of

issuing flood alerts directly to the public. Detailed flood warning statements for each flood risk zone are prepared and issued to the media, including AA Roadwatch, for broadcasting to the public. Alternatively the public can call the Floodcall information line (0645 881188) to hear details on the current situation in the area. In addition to providing flooding alerts, and information to the public and media, the Agency issues flood warnings to the emergency services, local authorities and some statutory undertakers. The police co-ordinate the response in major emergencies, along with the fire and rescue service.

The following areas are covered by tidal flood warnings; Hartlepool, Seaton Carew, the Tees Estuary, Redcar, Saltburn, Staithes, Whitby and Scarborough.

## **5.5 RECREATION AND AMENITY**

### **5.5.1 ANGLING**

#### **Background**

Angling continues to be one of Britain's most popular recreational sports. Angling brings economic benefits to an area. Fishing rights in non-tidal waters belong to the riparian owners, who may then lease the rights to angling clubs or syndicates. In tidal waters, there are public rights of fishing but access to the water may be controlled by the riparian owner.

Under the Salmon and Freshwater Fisheries Act 1975, anyone aged 12 years or over who fishes for salmon, trout, freshwater fish or eels in England and Wales must have a valid Agency rod licence. This system is enforced by Agency bailiffs. See Issue 10 and Figure 9.

#### **Local Perspective**

Angling for salmon, trout and sea trout occurs in varying degrees of intensity on the River Esk and its tributaries, dependent upon the distribution and abundance of fish species. Native brown trout stocks are supplemented in the Danby and Lealholm areas by hatchery reared fish. There is limited grayling fishing in this LEAP area. Recruitment and subsequent stock levels in some of tributaries are affected by naturally occurring acid run-off from the peat soils. The spawning migration up some streams can be restricted by low flows.

Significant lengths of the river banks of the Esk are devoid of trees and bushes and grazing occurs right up to the water's edge. This has reduced the numbers of fish holding and feeding stations, and resulting erosion has contributed to the deterioration of some spawning gravels. This situation will be addressed through a major regeneration project, part-funded by the EC. The aim of the project is to maximise the economic benefit of the River Esk rod fishery, to the local community, by encouraging more

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP LOCATION OF FISH SPECIES



Figure 11



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP ANGLING ACTIVITY



Figure 12

anglers to visit the area. This will be achieved by increasing the numbers of returning migratory salmonids through habitat and land use improvements. A key part of the project is the provision, by the Agency, of an upstream fish counter at Sleights Weir, which will be installed during 1997. Other areas of work part funded by the Agency include habitat improvement advice, fish population monitoring, and providing advice for the collection and stripping of broodstock salmon, and the subsequent hatching, rearing and stocking of fry. The rod fishery and the East Coast net fishery both affect the numbers of migratory salmonids breeding in the Esk, and hence future stock levels. See Issues 2 and 10.

Future changes in angling in the Esk catchment will be closely related to changes in the fish population. See 5.6.2. Any increase in the numbers of salmon returning to the Esk will result in an increase in angling activity. Similarly, an increase in the distribution and abundance of salmon, trout and migratory trout populations, by the removal of obstructions in some tributaries may lead to angling opportunities in areas of the catchment not currently fished.

Angling on the coastal streams only occurs to any degree on Skelton Beck, where the brown trout population is supplemented by hatchery fish. Due to the physical nature and inaccessibility of the other coastal streams, they do not lend themselves to angling activities, although the provision of footpaths may encourage angling in the future.

## 5.5.2 COMMERCIAL FISHING AND ENFORCEMENT

### Background

Commercial fishing, for both eel and migratory salmonids, is controlled by the Agency through licences, which are policed by Agency Enforcement Officers.

A commercial net fishery along the coast has, for many years, exploited both salmon and sea trout returning to their native rivers. Improvements to water quality, together with the development of synthetic net materials, have markedly increased catches. This has resulted in the commercial net fishery becoming increasingly controlled by bye-law and Net Limitation Orders (NLO). Following the publication of the joint MAFF and Scottish Office report on Salmon Net Fisheries in 1991, a NLO was formulated and came into effect in January 1993. It aims to phase out drift netting along the entire East Coast as existing fishermen leave the industry. Revised salmonid fishery bye-laws that allow for a common management regime along the entire coast have been produced following public consultation, and have been approved by the Government and the EC, see Issue 10.

### Local perspective

'T and J' nets are fixed on the beach at low tide to intercept migratory salmon. In 1997, 3 T and J net licences were taken up at Hartlepool, 1 licence at Saltburn, 2 licences at

Whitby, 2 licences at Scarborough and 2 licences at Filey. Drift nets are licensed to fish between the low water mark and the six mile limit. In 1997, there are 9 licensed drift nets operating out of Whitby.

Licences for drift and T and J nets are policed by the Agency, whose Enforcement Officers maintain a strong presence in the harbours and tidal rivers, especially the Esk.

The Agency is both proactive and reactive in the detection, apprehension and prosecution of poachers in the rivers and sea. Boat and foot patrols along with surveillance operations are regularly carried out. This requires strong links with the North Yorkshire Police Force, in particular the Whitby and Esk valley officers and the Scarborough based Task Force. In many instances, the operations include the use of police facilities. Over recent years, the Agency has achieved a near 100% success rate for prosecutions brought before the Courts for poaching activities.

Both net and rod fishermen are obliged, by law, to inform the Agency of the numbers and weights of all migratory salmonids caught. The information obtained is used to assess the level of exploitation, to help formulate new legislation and to assist in calculations of fish population statistics. Further information on the movement of fish at sea has been obtained by an extensive micro-tagging programme of hatchery reared juveniles and wild smolts from the River Esk. These data are essential to allow conservation measures to protect fish stocks to be developed. The information is also used to assess the validity of salmon restocking programmes carried out by the Agency.

Agency Enforcement Officers liaise with the North East Sea Fisheries Committee, MAFF, HM Customs & Excise, Harbour Authorities, Local authorities and fishermen's organisations with details of catch returns.

In the long term, NLOs will phase out the use of drift and T and J nets along the East Coast. This may result in an increase in the population of migratory salmonids within the catchment. However, the reduction in licensed netsmen will reduce the amount of information provided to Agency Enforcement Officers and the level of self policing undertaken by this section of the fishing industry. Consequently, enforcement will need to increase to protect the fish stocks from the likely increase in poaching activities.

There is no licensed commercial fishing taking place on the coastal streams. See 5.6.2 & Issue 10.

### **5.5.3 NAVIGATION AND WATER BASED ACTIVITY**

#### **Background**

A significant use of the water environment is for amenity and recreation. This is now recognised as an industry which plays a vital role in the local economy even in areas where there is no direct charge for the use of water and associated amenities. Passive



recreational use of water includes viewing scenery, walking near water and bird watching. Active recreation includes rowing, sailing, canoeing and angling, see Figure 13.

### Local Perspective

The River Esk is navigable for the 5 kilometre tidal stretch from Ruswarp Weir to the mouth of the river at Whitby. The navigation authority is Scarborough Borough Council. With the exception of the harbour area, the navigable stretch of the Esk is used purely for recreational purposes. The Agency has no navigation authority in the LEAP area. The other navigation authorities in the plan area are Tees and Hartlepool Port Authority in the North and Whitby Harbour Department.

Water sports facilities are well catered for along the coastal stretch with sailing clubs, surfing and wind surfing facilities at Filey, Scarborough, Whitby, Sandsend, Runswick Bay, Saltburn by the Sea, Seaton Carew, Redcar and Hartlepool. Robin Hood's Bay and Staithes have sailing facilities, and water-skiing takes place at Runswick Bay, Seaton Carew and Hartlepool. In recent years, dingy sailing has become popular off Redcar, with National youth sailing competitions being held there. Sub-aqua takes place at Staithes, Redcar and Runswick Bay making the most of the many wreck sites. Seaton Carew beaches are once again popular with bathers.

The Hartlepool Marina development offers excellent facilities for sailing clubs and boating of all types with many regattas and competitions taking place through the Summer. Visitors from across the North Sea with ocean going boats make use of Hartlepool's facilities, as well as local groups such as Cleveland Youth Outdoors. The Hartlepool Rowing Club currently offer Sunday morning rowing for teenagers and adults.

Due to the relative absence of reservoirs and the predominance of shallow, fast flowing rivers, potential for water sports other than angling is limited. There are parking, picnic and toilet facilities at the east of Scaling Dam Reservoir. Angling and sailing are catered for at the club house.

Rowing boats can be hired from Ruswarp on the Esk. Interest in canoeing and kayaking continues to grow. The River Esk is best suited to canoe touring rather than competitive or challenge events. Canoeists have access to the River Esk at Ruswarp. Barnby Outdoor Centre and the North Yorkshire Local Education Authority take school children canoeing on the River Esk between Ruswarp Weir and Sleights Weir and on the tidal section of the river. When weather conditions permit, sea canoeing takes place off Sandsend Beach and Runswick Bay, (see Issue 4).



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP AMENITY AND RECREATION



0 2 4 6 8 10km  
Scale

Figure 13

#### 5.5.4 LAND BASED ACTIVITY

##### Background

The Agency has a statutory duty to ensure that any land in its ownership is available for recreational purposes and to promote the recreational use of inland and coastal waters. In order to fulfill these duties, the Agency seeks to encourage a wider appreciation of the environment as a whole through both passive and active recreation. The Sports Council, Countryside Commission and the Agency are working together to enable a greater number of people to enjoy the environment through recreation. A particular emphasis for the Agency in the coming years is the delivery of recreation in a sustainable manner. See Issue 4.

##### Local Perspective

A cycle way is being developed, part of which will incorporate the disused railway line between Whitby and Ravenscar with a feeder route continuing to Scarborough and Whitby. Funding is now in place for the construction of the path by Scarborough Council and it is hoped that work will start in 1998. Mountain biking in the North York Moors National Park and along the coast is a popular activity.

Walking is one of the more popular activities, with many short walks suitable for all abilities and a number of long distance paths within the LEAP area. The Cleveland Way, a 93 mile walk from Helmsley to Filey, crosses wild open moorland for the first half of the route and follows the coastal path on the Heritage Coast for the second. The North York Moors National Park have developed a link route, The Tabular Hills Walk, which joins up the start and end points of the Cleveland Way from Helmsley through to Scarborough. Within the Esk Valley, the circular Eskdale Way covers 82 miles; the 35 mile Esk Valley Walk which was developed by the National Park, follows the River Esk from its source to the coast at Whitby. There are two coast to coast walks: a 190 mile route linking St Bedes Head with Robin Hood's Bay, and a 120 mile walk linking Morecambe Bay with Saltburn-by-the-Sea.

#### 5.6 CONSERVATION

##### 5.6.1 FLORA AND FAUNA

##### Background

The Agency's conservation duties are set out in Sections 6, 7, 8 and 9 of the Environment Act 1995. The requirements of the Agency are explained in Appendix A.

English Nature is the statutory advisor to the Government on nature conservation in England, with responsibility for promoting the conservation of England's wildlife and natural features. Its work includes the selection, establishment and management of

National Reserves, the identification and notification of SSSIs and the provision of advice about nature conservation.

The Government has implemented the key provisions of the European Habitats Directive through the Conservation Regulations 1994. The aim of the Directive is to contribute to the conservation of natural habitats and wild fauna and flora. It identifies the species and habitats which are of European importance and areas which are to be designated as Special Areas of Conservation (SACs). SACs, together with the Special Protection Areas (SPAs), designated under the European Wild Birds Directive, will form a network of Natura 2000 sites of European importance. The Directive requires the assessment of the impacts of plans, projects, works or authorisations upon these protected areas so there are significant implications for the Agency as a competent authority.

Article 10 of the Habitats Directive also requires Member States to enhance the network of Natura 2000 sites by the conservation of linear and other 'linking' habitats such as rivers, river corridors, traditional field boundaries, small ponds and woods. This is required in order to allow species to migrate and disperse and for genetic exchange.

There are a number of international agreements and conventions to which the UK Government is a signatory. These include the Ramsar Convention (1971) on the Conservation of Wetlands of International Importance; the Bonn Convention (1983) on the Conservation of Migratory Species of Wild Animals. More recently and of importance is the Rio Convention on Biological Diversity (1992) signed by the UK Government at the Rio Earth Summit.

There are many non-statutory bodies which play a significant role in nature conservation. County Wildlife Trusts operate on a local basis: managing nature reserves, promoting conservation in the wider countryside; and helping to identify and protect sites of conservation value at a county level. The Royal Society for the Protection of Birds (RSPB) plays an important role in wildlife conservation: establishing and managing reserves; conducting research; campaigning on issues of national significance and advising on many elements of land management for birds and other wildlife.

The Farming and Wildlife Advisory Group (FWAG), a non-statutory body with partial funding from MAFF and the DETR, provides guidance to farmers and landowners on the integration of wildlife conservation with farming practices.

SSSIs are designated by English Nature in England because of their ecological, physiographical or geological characteristics and protected by the Wildlife and Countryside Act 1981. Those which meet the criteria as set out in the Habitats Directive may be designated SACs or SPAs.

MAFF funds a range of schemes under its agri-environment package and has taken over the funding of the Countryside Stewardship scheme which was previously administered by the Countryside Commission. The Stewardship Scheme is not run on a defined



boundary basis - it is targeted to a range of valued habitat and landscape types in the wider countryside, including a category of Waterside Landscapes. See 6.5 and Issue 3.

### Local Perspective

The River Esk lies entirely within the North York Moors National Park (NYMNP), except for its most downstream reach where it flows through Whitby. Open moorland characterises much of the catchment and is an important habitat for a wide variety of wildlife. The moorland areas of the National Park are considered to meet criteria set out under the EC Directive on the Conservation of Wild Birds which requires the establishment of an SPA to protect certain listed rare or vulnerable species. However, to date no SPA areas have been designated on the moors.

The North York Moors National Park runs three major schemes in the plan area. The first is the North York Moors Farm Scheme which covers several of the River Esk's tributary Dales, eg Westerdale, Glaisdale, Danby and Fryup Dales. This scheme is a whole farm agreement which gives payments to farmers for managing conservation and landscape features sympathetically for the environment. The River Esk Regeneration Scheme is another large scheme which is currently being run in partnership with many other interested organisations, including the Agency. Essentially, the aim of the regeneration project is to protect, conserve and enhance the River Esk habitats for fish and other wildlife so as to increase the economic value of the river to the rural community. The third main programme run by the Park is their Moorland Regeneration Programme which aims to promote best practice for moorland management and regenerate damaged areas. The Park, in partnership with the Agency and Local authorities also sponsor a Heritage Coast Officer. See 6.5 & Issue 3.

Within the Esk catchment there are currently six SSSIs, two of which extend South and cross the boundary into the Derwent LEAP catchment. All six SSSI sites are located on tributaries of the Esk or on high ground at tributary source and most are susceptible to water borne pollution. The six SSSIs were designated primarily for their vegetation features with the exception of Newtondale SSSI, a deeply incised meltwater channel from the last ice age, which was designated for its importance as a classic geomorphological feature.

The River Esk catchment remains an area of unique wildlife value. Much of the Esk Valley is wooded and generally undisturbed, supporting what is fast becoming a rare and threatened feature of Britain's landscape. Large sections of the Esk and coastal streams are dominated by alder and the spread of alder root disease from adjacent catchments in North Yorkshire from which it is known, represents a significant threat to the landscape and ecology of the catchment.

The River Esk is the principal salmon and sea trout river in Yorkshire, see Issues 2 and 10, and is also important for many other animals, including the nationally notable species, the otter and the stonefly *Nemoura dubitans*. Good water quality is critical in



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP NATURE CONSERVATION

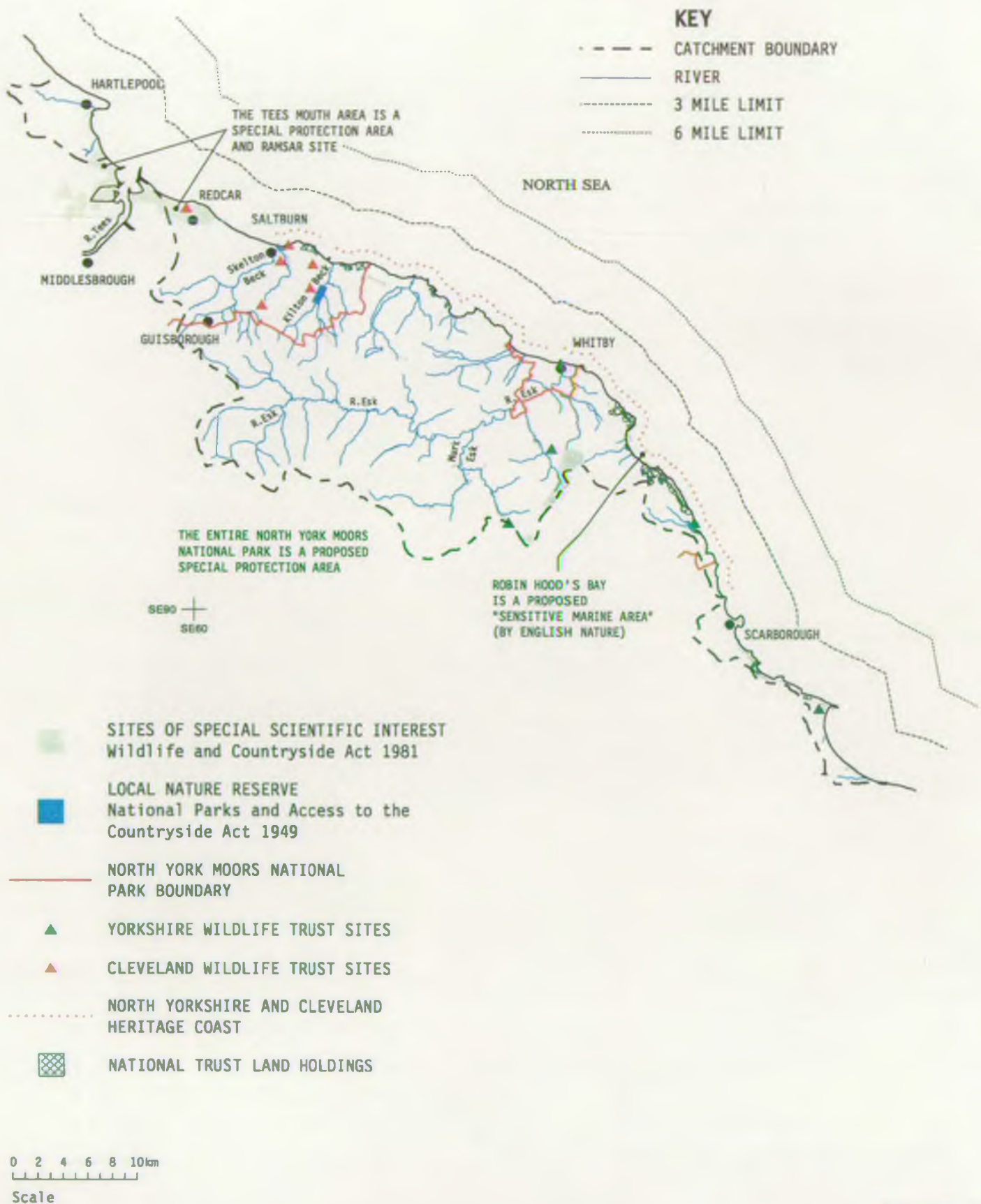


Figure 14

maintaining this conservation value. Another nationally important animal which used to be common in certain reaches of the Esk is the water vole, but populations have declined recently in line with the national trend for this species.

Many of the streams that drain to the coast are of exceptional conservation value as they lie within undisturbed steep-sided valleys which are cloaked by ancient broadleaved woodland which supports a semi-natural flora and fauna.

Yorkshire Wildlife Trust and Cleveland Wildlife Trust manage a number of sites within the catchment and there is a Local Nature Reserve at Clarkson's Wood near Loftus.

The stretch of coastline between Hartlepool and Flamborough Head is of exceptional landscape and conservation value which is reflected by the large number of SSSI designations that cover a substantial proportion of this section of the coast. Some 19 SSSIs are located along this stretch of coastline which were principally designated for their outstanding geological interest. A further four SSSIs are located inland but fall into the coastal catchment and most of these are associated with streams flowing to the coast. In addition to the SSSI designations, a 36 mile stretch of this coastline between Saltburn-by-the-Sea and Scalby has been, with the exception of two small areas at Skinningrove and Whitby, defined as Heritage Coast by the Countryside Commission and Local authorities. The Heritage Coast identifies areas of outstanding coastline that not only require protection but also focus on the management needs of the coast. It is managed by the North York Moors National Park as much of it falls within its boundary.

The National Trust also has an interest in this stretch of coastline and currently owns a substantial proportion of land along its length. The Trust has a policy of acquiring unspoilt patches of land along the coast under its Enterprise Neptune Scheme. Land acquired by them cannot be sold unless debated in Parliament, as it is protected under the National Trust Act.

English Nature has proposed an area between Maw Wyke Hole and Beast Cliff, including Robin Hood's Bay, as a Sensitive Marine Area (SMA). The aim of SMAs are to develop procedures for appropriate management through involving all organisations with an interest in the area. Education is an important aspect within areas designated as SMAs.

The extremities of the Tees Estuary are important sites for conservation reasons. Four SSSIs protect what remains of the original inter-tidal complex habitats. These SSSIs are collectively known as the 'Teesmouth Flats and Marshes'. The area is particularly noted for its wintering bird populations. As with the upland areas, its value is recognised internationally as it meets the criteria for Special Protection Area (SPA) designation under the Birds Directive, and inclusion on the list of Wetlands of International Importance under the Ramsar Convention. Parts of North Gare Sands are included in the Teesmouth National Nature Reserve (NNR).

South Gare and Coatham Sands includes a large area of sand dunes, saltmarsh and freshwater marsh. Areas of mud flat on Bran Sands within the SSSI also provide important winter feeding grounds for many birds, such as the bar-tailed godwit, curlew, redshank and grey plover.

Cowpen Marsh SSSI includes the largest area of saltmarsh between Lindisfarne and the Humber Estuary. The saltmarsh and coastal grazing marsh have a very rich flora, which together with Greatham Creek, provide important roosting and feeding grounds for migratory waders and wildfowl. Part of Cowpen Marsh is managed as a Nature Reserve by a committee comprising English Nature, ICI and the Industry and Nature Conservation Association (INCA).

Seaton Dunes and Common SSSI on the North bank at the mouth of the Tees Estuary has a wide range of habitats supporting a rich flora, invertebrate and bird life. The sand dunes, behind extensive mud flats, have a very diverse flora, including the nationally rare rush-leaved fescue, *Festuca juncifolia*. The flats on the North Gare Sands support the small spire snail, *Hydrobia ventrosa*, at its northerly limit on the East Coast.

Three SSSIs in the LEAP area have been identified as requiring Water Level Management Plans (WLMP) in order to protect their ecological interest and balance with other environmental requirements. For all three: Railway Stell West, Greatham Creek and Cowpen Marsh, an Interim Management Statement has been produced, the precursor of the full WLMP.

Eston Hills are designated as a Historic Landscape. The Royal Commission is looking at historic lead mining activities in the locality with regard to possible protection measures. See 5.6.1 & 6.5.

The diverse geology and physio geographic features eg sand dunes, steep rock cliffs and saline lagoons of this stretch of the coastline also provide numerous habitats for other wildlife and many types of wildflowers. See 2.5.1 and Figure 14.

## 5.6.2 ARCHAEOLOGY AND HERITAGE

### Background

The landscape of Britain contains a rich heritage of historic and archaeological features. These can vary from megalithic monuments to camp settlements, banks, ditches and mounds; Roman remains; castles and fortifications; deserted villages; ecclesiastical buildings; great halls and bridges. Many sites protected or managed for their historical interest are also valuable habitats for a range of wildlife. This is because they have often been undisturbed for a long time and are usually unaffected by fertilisers and chemical sprays.

The principal legislation affecting ancient monuments in England is in the Ancient

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP ARCHAEOLOGY & HERITAGE

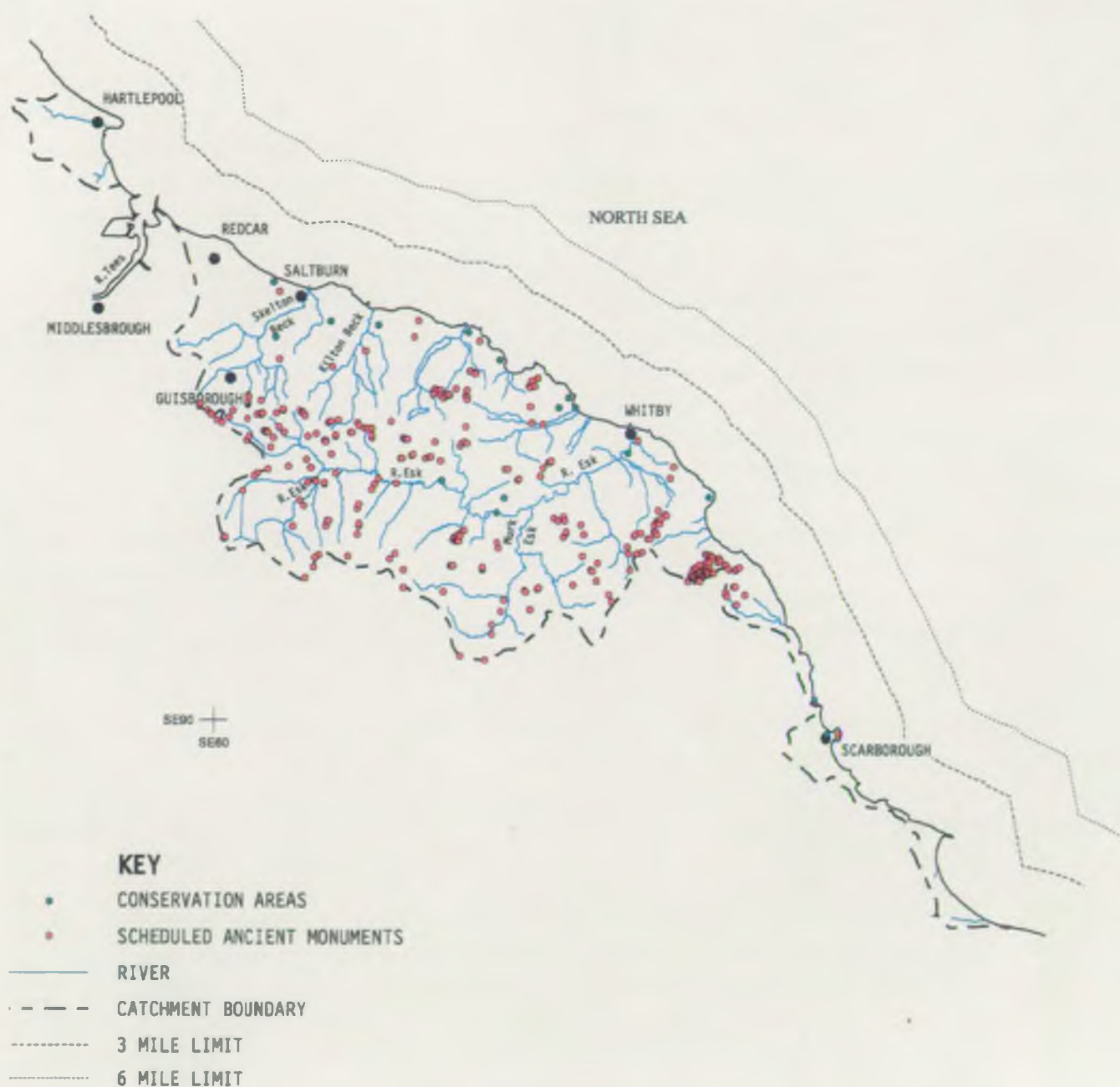


Figure 15



Monuments and Archaeological Areas Act 1979, which was subsequently amended by the National Heritage Act 1983. The Secretary of State is required to compile and maintain a schedule of monuments to which statutory protection is afforded.

Historic landscapes within the area are designated by English Heritage whilst Scheduled Ancient Monuments (SAMs) are designated by the Department of National Heritage on advice from English Heritage. Other historical and archaeological sites may fall within areas designated as Environmentally Sensitive Areas by MAFF or be covered by a Countryside Stewardship agreement. Local planning authorities can also designate conservation areas, which are of particular interest for special protection and these are included in the county Sites and Monuments Record (SMR) (see Figure 15 and 2.5.1).

### Local Perspective

Settlements close to and on the banks of the River Esk are known from at least the Romano-British period, circa 1st - 4th centuries AD, although it is highly probable that riverside sites will have been utilised far earlier than this for hunting and fishing. Farming settlements in the valleys are likely to date from the time that the post glacial forest was first cleared though this is still quite uncertain.

Many of the early occupation sites will have been lost to periodic inundations and even those which were high enough to escape flooding, if not re-used and lying beneath present settlements, are likely to have been affected by agricultural operations in subsequent centuries and may now only survive as buried remains, with few surface indications.

Most of the available information relates to documentary sources or remains which date from the medieval, post-medieval and industrial periods, although much of the uplands surrounding the valley contain extensive landscapes of prehistoric settlements, burial sites, and field systems. If these remains were once more widespread within the valleys, they are likely to have been destroyed, buried or masked by later activities.

In the early medieval period the valley will have been affected by the influence and land-ownership of religious houses - Whitby Abbey and Grosmont Priory. Chapels, which may date from this period, are known at Eskdale and near Grosmont, eg St Lawrence's Chapel. Deer Parks are recorded at Aislaby, Lealholm, Danby and at the North Eastern end of Glaisdale. Esklets in Westerdale is the suggested site of a medieval grange, a farm belonging to Rievaulx Abbey.

In late Anglo-Saxon/early Norman times, the Upper Esk Valley was thinly populated. In Domesday, 1086, an estate is recorded based on a manor at Crunkly Gill, near Lealholm. This later became known as the manor of Eskdale. By 1272, records show that Danby had become very densely settled. Some 1200-1500 acres were under cultivation. Much of the Esk Valley between Danby and Lealholm however, was being developed into a series of great meadows by the Lord of the Manor. The manor is also

recorded as including two large and five small forges for the production of iron.

There has been a great deal of industrial activity in the area. This includes the Esk Valley railway, which links to the unfinished Paddy Waddell's railway just north of Glaisdale, iron-works and iron-stone mining around Grosmont and Glaisdale, jet mining in Westerdale, and several brick and tile works.

The river also powered a series of mills - the Esk Mill at Castleton, Danby, Lealholm and Westerdale mills, and a walk mill at Glaisdale. Maps show a series of old sheepfolds and sheep washes in Westerdale. These, and the stone walls which define the fields, are also important elements of the historic landscape of the Esk Valley.

A variety of harbour works, breakwaters and building foundations are found along the coast and reflect the past industrial activities such as mining, fishing and trade in general. Offshore, the archaeological record is largely unknown but there are likely to be a number of ship wrecks and submerged settlements.

Until the mid 19th Century when trawling for fish was introduced, fishing was more normally carried out inshore on a small scale to supply food for local consumption. With the introduction of trawling and the discovery of rich fishing grounds off the North Yorkshire coast at Silver Pits and Dogger Bank, the fishing industry blossomed but has since declined as a result of increased competition, improved methods of storing fish, overfishing and quota restrictions. Scarborough, Bridlington and Whitby have always been the key fishing ports and Whitby was also a whaling port until 1837.

The coastal zone has been mined heavily for jet and ironstone. Jet was mined between Robin Hood's Bay and Saltburn and the Esk Valley. Shales were mined from the coastal cliffs between Ravenscar and Saltburn for the manufacture of alum crystals which have many industrial uses, such as in the preparation of wool, leather, medicines and cloth. Whitby and Coatham were the first alum ports and the industry operated for almost 300 years but ceased in the early-mid 19th Century as the chemistry of the manufacturing process was understood, negating the need to extract the natural chemical. The giant quarries and rubbish heaps associated with the mining and manufacture of alum changed the shape of the coastline and the tipping of waste at sea must have had an offshore impact.

The mining of iron ore in the Cleveland Hills and North York Moors in the 19th Century triggered the development of the Tees port area including Hartlepool. The transport of coal along the East coast from Sunderland and Newcastle to London generated trade in the area for many years as many ships used to stop over on their way South. Shipbuilding was another important business and Captain Cook's ship, the 'Endeavour', was made in Whitby. It is from this port that he set sail to the South Pacific in 1768.

**6.0 CURRENT STATUS OF THE LOCAL AREA**

	<b>Page Number</b>
<b>6.1 <u>INTRODUCTION</u></b> .....	98
<b>6.2 <u>AIR</u></b>	
<b>6.2.1 AIR QUALITY</b> .....	98
<b>6.3 <u>WASTE</u></b>	
<b>6.3.1 WASTE MANAGEMENT</b> .....	106
<b>6.4 <u>WATER</u></b>	
<b>6.4.1 WATER RESOURCES</b> .....	110
<b>6.4.2 WATER QUALITY</b> .....	112
<b>6.4.3 FLOOD DEFENCE</b> .....	122
<b>6.5 <u>BIODIVERSITY</u></b> .....	124

## 6.1 INTRODUCTION

This section identifies the environmental criteria required to measure the health of the environment and the standards needed to enable the well-being of natural resources, ecosystems and public health to be maintained and where appropriate enhanced.

## 6.2 AIR

### 6.2.1 AIR QUALITY

#### **Background**

The Environment Act 1995 required the Government to publish a National Air Quality Strategy which completed its consultation stage at the end of November 1996. Local authorities must review the present air quality against standards and objectives contained within the strategy to achieve air quality standards by 2005. The Agency will work closely with the Local authorities to help achieve the requirements of the National Air Quality Strategy. See 5.1.4 & 5.1.5.

The Agency will look to produce an air quality strategy in the area for Part A processes regulated by the Agency under IPC to link with local air quality plans.

Air quality is monitored by the Local authorities, and by some operators themselves. Each Local Authority addresses the issues which it sees as particularly relevant and, collectively, the authorities are looking at compiling the data in a consistent manner. The Agency will be looking more closely at assessing the overall quality of air so as to be able to produce a detailed statement of air quality. Key to effective air quality monitoring are:

- monitoring for ammonia (NH<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), sulphur dioxide (SO<sub>2</sub>), and ozone (O<sub>3</sub>);
- 'real time analysis' - continuous automatic monitoring giving an instantaneous reading; and
- 'diffusion tubes' - manual method giving reading at the time of measurement.

#### **Current Status**

The 1995 Teesside Environmental Epidemiology Study summarised the air quality on Teesside as follows:

- the findings so far indicate that levels of individual air pollutants were comparatively low and generally below the long term European Union guidelines or target values. The three pollutants where the levels were closest to guideline thresholds are ozone, PM10 and benzene;
- historic air pollution was characterised by high releases of sulphur dioxide,



- smoke and ammonia. These pollutants have been drastically decreased over the last few decades and are now low;
- monitored levels of the majority of air pollutants were comparable with other urban areas;
  - Volatile Organic Compounds (VOCs) have some differences from the normal levels found in urban areas;
  - peaks of VOCs have been known to occur on Teesside suggesting the occurrence of short term industrial releases; and
  - modelled and monitored levels of air pollutants were in good agreement.

### Ozone

This gas is commonly known as the "sunshine pollutant" as it is formed as a result of the reaction between oxides of nitrogen ( $\text{NO}_x$ ) hydrocarbons and oxygen in sunlight. In the upper atmosphere ozone forms a barrier to a harmful ultra-violet radiation. At ground level, however, it is a poisonous gas and a photochemical pollutant. As the most common photochemical oxidant, ozone is a good indicator of photochemical pollution in general.

Ozone concentrations tend to increase in the summer months, especially when photochemical pollutants are trapped at ground level by atmospheric temperature-inversion conditions. Ozone has a number of health effects, especially eye, ear and throat irritations, nausea, headaches and severe breathing difficulties for asthmatics. The gas causes extensive damage to foliage, especially crops and forests.

The World Health Organisation (WHO) air quality guidelines recommend that 8 hourly concentrations should be below 60 parts per billion (ppb). Guidelines to protect vegetation are 100 ppb for hourly average concentrations and 30 ppb for daily averages. The UK Expert Panel on Air Quality Standards (EPAQS) has recommended a limit of 50 ppb measured as an 8 hour running average which is the proposed draft National Air Quality Strategy Standard.

Within the area, ozone levels are measured at Redcar. These measurements and those from adjacent areas, the Tees and Derwent, are summarised below :

**Table 2: Ozone Levels.**

Monitoring Location	Ozone Annual Average (ppb)		
	1993	1994	1995
Middlesbrough	19	22	21
Redcar (Coatham)	19	19	17
High Muffles	29	29	28

Monitoring Location	Number of hours in excess of the EPAQ standard		
	1993	1994	1995
Middlesbrough	25	41	82
Redcar (Coatham)	17	13	8
High Muffles	188	253	33

**Nitrogen Dioxide (NO<sub>2</sub>) and Nitrogen Oxides (NO<sub>x</sub>)**

Oxides of nitrogen (NO<sub>x</sub>) are formed by a reaction between nitrogen and oxygen during combustion processes. The main sources of NO<sub>x</sub> are power stations, vehicular emissions and industry. The gases are initially released as nitric oxide (NO) which is converted to the more toxic nitrogen dioxide (NO<sub>2</sub>) by the presence of sunlight. This may create a photochemical smog. Nitrogen dioxide is an irritant, with similar short term health effects to ozone. Little is known about the long term health effects of exposure. Oxides of nitrogen can affect plant growth, contribute to acid rain and exacerbate tropospheric ozone levels. They are also greenhouse gases.

Little is known about the potential for long distance movement of the gases, and the EC has defined them as secondary transborder pollutants.

The emissions of NO<sub>x</sub> in England and Wales in 1990 were estimated at 2.7 million tonnes, an increase of 0.5 million tonnes per year from 1985 emission information. This increase has been attributed to the increase in vehicular emissions which now account for nominally 60% of the total UK emissions. Polluting emissions from power stations have declined substantially due to the introduction of cleaner technologies.

EC Directive 85/203 sets limits on NO<sub>2</sub> to protect human health at 200 µg/m<sup>3</sup> or 97.5 ppb (98 percentile of hourly averages). The WHO hourly guideline concentration is 110 ppb, with the daily guideline being 80 ppb and the annual guideline being 26 ppb. Guidelines to protect vegetation are 50 ppb for 4 hourly concentrations and 16 ppb for

annual averages.

The proposed National Air Quality Strategy (Draft) Standards are 104.6ppb (hourly mean) and 20ppb (annual mean) for NO<sub>2</sub>. Within the area, NO<sub>2</sub> measurement is done in Redcar and Scarborough. These measurements and those from adjacent areas are all summarised below :

**Table 3: Levels of Nitrogen Dioxide.**

Monitoring Location	Nitrogen Dioxide Annual Average (ppb)		
	1993	1994	1995
Scarborough	13	15	14
Malton	-	9	13
Middlesbrough	11	13	14
Redcar (Coatham)	15	15	16
Billingham	16	17	19

#### Volatile Organic Compounds (VOC)

These gases include hydrocarbons, halogenated organics and benzene. They originate from oil, petrol, solvents and some industrial processes. These chemicals form tropospheric ozone and photochemical smogs in the presence of sunlight. Their health effects are varied. Some are carcinogenic, while others can cause eye, throat and chest irritations. EPAQS have advised that annual average levels of 5ppb of benzene and 1 ppb of butadiene present small risks to health. These values are proposed in the draft National Air Quality Strategy as standards.

In the UK, VOC emissions are rising slowly, and emissions from vehicular traffic are forming an increasing proportion of this total. It is expected that the compulsory introduction of catalytic converters from the end of 1993 will result in a decrease in VOC emissions. Total VOC releases nationally in 1990 were approximately 2.7 million tonnes, with 35% coming from road transportation and 50% from solvent usage and industrial processes.

Within the area, VOC levels are not measured. However, measurements for the Tees area are summarised below:

**Table 4: Levels of VOCs.**

Annual Average (ppb) At Longlands Middlesbrough		
	1994	1995
Benzene	1.3	1.08
1,3 Butadiene	0.3	0.2

**Sulphur Dioxide (SO<sub>2</sub>) and Smoke**

Sulphur dioxide (SO<sub>2</sub>) is an irritant to both eyes and throat and can cause serious harm to people with respiratory problems. The gas reacts with water in the atmosphere to form weak sulphuric acid, i.e. acid rain. Acid deposition, both wet and dry, causes considerable damage to trees, crops and buildings. The major source of SO<sub>2</sub> is from the combustion of fossil fuels where sulphur is released on burning: coal fired power stations, oil burning processes and vehicle emissions.

It should be noted that national SO<sub>2</sub> emissions have reduced by over 30% in the last 10 years, a reduction from 4,898,000 to 3,774,000 tonnes per year. The reduction in SO<sub>2</sub> concentrations can be attributed to initiatives such as the creation of smokeless zones, the increase in the use of gas fired central heating systems, the reduction in the use of open coal fires and the reduction in the number of households receiving free or subsidised coal.

Average levels of SO<sub>2</sub> can be misleading, as high concentrations, which cause maximum damage to crops, trees, buildings and human health, can be dispersed relatively quickly and are not therefore immediately obvious from annual average data.

The EPAQS have proposed an SO<sub>2</sub> limit of 100 ppb for a 15 minute period. The EC have set a daily limit of 80 ppb and an annual average of 45 ppb, dependent on associated smoke level. The EPAQS limit has been proposed in the National Air Quality Strategy draft document.

Smoke is a mixture of suspended solids and liquids produced by the incomplete combustion of fuels. Smoke can cause respiratory problems and in extreme cases particulates may completely coat the lungs and cause asphyxiation. Smoke emissions from coal burning have halved nationally in the last 10 years whereas diesel fumes have almost doubled. Total emissions of smoke have declined by around 20% since 1980.

The European Commission guide values (1982) for smoke particles are linked with SO<sub>2</sub> levels. The lowest smoke particle level considered is 80 µg/m<sup>3</sup> as an annual average. WHO guidelines for black smoke are 50 µg/m<sup>3</sup> as an annual average and 125 µg/m<sup>3</sup> as a 24 hour average.



Within the area, SO<sub>2</sub> measurement is carried out in Redcar and Scarborough. These measurements and those from adjacent areas are summarised below :

**Table 5: Levels of Sulphur Dioxide.**

Monitoring Location	Sulphur Dioxide Annual Average (ppb)		
	1993	1994	1995
Scarborough	8	5	5
Malton	3	3	1
Middlesbrough	7	8	5
Redcar (Grangetown)	7	4	2

Smoke measurement in the plan area is carried out in Scarborough, and outside the plan area in Malton. Both are summarised below:

**Table 6: Levels of Smoke**

Monitoring Location	Smoke Annual Average (µg/m <sup>3</sup> )		
	1993	1994	1995
Scarborough	15	12	11
Malton	9	7	4

### Acid Deposition

This phenomenon is caused by airborne pollutants such as SO<sub>2</sub> and NO<sub>x</sub> which readily dissolve in rain water forming weak sulphuric and nitric acid. The resultant rain water will be acidic, with a pH value of less than four. It is not only the concentration of acids which is important, but also the total rainfall at a site. Areas with the highest rainfall also tend to have the highest amounts of wet deposited acidity.

The main contributors to the acid rain problem are coal fired power stations, especially those burning coal with a high sulphur content. These emit SO<sub>2</sub> which reacts with water vapour in the atmosphere to form weak sulphuric acid. Similarly burning coal with a high chlorine content contributes to the formation of hydrochloric acid. Emissions of SO<sub>2</sub> are decreasing as desulphurisation technology is installed at power stations.

A major concern with acid deposition is that it can travel long distances before causing damage. The reason for long distance transportation of pollutants is a direct result of earlier pollution abatement actions following the Clean Air Act of 1952. It was thought

that by using high chimney stacks, such as those at the large power stations, the emissions would be diluted and dispersed, but this policy only served to spread the problem to other areas.

The local effects of acid rain have been noted for over 100 years but the scale of the problem has increased, placing the problem on the international agenda. Recent simulation modelling suggests that Europe will lose one sixth of its potential wood production from forests due to air pollution before 2005. Losses could be greater than this when the impact of soil erosion, flooding, habitat destruction and the loss to the carbon cycle are taken into consideration.

Acid deposition affects watercourses, directly and through the increased acidity of run-off waters, and can also have a profound effect upon soils through the effects of leaching. Nutrients and certain metals are leached from soils and washed into watercourses. The effects of this process are to reduce soil quality and potentially, for the leached material to find its way into drinking water supplies.

### Lead

Lead has major adverse health effects, particularly on children. The National Society on Clean Air estimates that 80% of lead in the body originates from the atmosphere. The main sources are from petrol, coal and metal works. Lead in petrol has been reduced by 25% of its 1980 level. Since 1986, reduced lead petrol has been made increasingly available at comparatively advantageous prices which has led to a reduction in lead emissions of almost 6,000 tonnes per annum.

There are three national monitoring sites in the North East Region, in Newcastle, Tynemouth and Leeds, and lead levels at these sites have followed the national trend, dropping considerably over the last decade. However, slight increases in lead levels have occurred in recent years, due to the saturation of the unleaded petrol market and an increase in overall car ownership. Lead levels are expected to stay constant for a while, as increasing car ownership is balanced against the reduction in circulation of older cars which use leaded petrol. A lead limit of  $0.5\mu\text{g}/\text{m}^3$  is proposed within the draft National Air Quality Strategy.

### Particulates

Sources of particulate air pollution can be both man made or biological. Major sources of man made dusts include fuel combustion, domestic fires, road dust, photochemical aerosol,  $\text{NO}_2$  and organic gases. Dusts of a biological origin are derived from plant fragments, from wind blown soil particles and can also result from sea spray and vegetation derived terpenes.

The adverse effects of particulates on human health depend on chemical composition, such as the presence of trace metals and hydrocarbons, and size, which determines the

site of deposition on the respiratory tract. Epidemiological evidence suggests that particulates of below 10  $\mu\text{m}$  diameter (PM10) can result in adverse health effects.

EPAQS have proposed a PM10 limit of 50  $\mu\text{g}/\text{m}^3$  as a 24 hour rolling average. This is proposed in the draft National Air Quality Strategy.

There are no monitoring stations for monitoring PM10 in the plan area.

#### Industrial Monitoring by the Agency.

The concept of Integrated Pollution Control (IPC) is Best Available Techniques Not Entailing Excessive Cost (BATNEEC) to prevent, minimise and render harmless both prescribed substances and non-prescribed substances. Another requirement is to have due regard to the 'Best Practicable Environmental Option' (BPEO) if the release can impact on different media. The key part to controlling IPC regulated processes is the precautionary principle - prevent the potentially harmful release in the first place.

IPC includes self-monitoring by industry which is regularly audited by the Agency. Operators monitor the point source releases at a specified frequency and using agreed methods of analysis. The results of monitoring and an estimate of the annual releases are placed on the public register. The Agency performs independent monitoring to audit the point source releases from the IPC processes. The results of the Agency's monitoring activities are also placed on the public register.

Eventually it is intended that air quality targets will be set at two main levels, one will be a guideline figure to represent the level at which the pollution has either been rendered harmless to health or the environment, or at which it is unlikely that any significant benefit could be obtained by expending further reasonable costs on abatement because of background sources or other factors. The other will be a trigger level which distinguishes when air quality is so poor that an immediate response is justified to prevent serious damage.

Complex interactions between weather conditions, chemical processes, distances that air pollution can travel and the number of possible sources, make understanding cause and effect and attributing responsibility difficult in cases of air pollution. Prevention therefore depends upon the establishment of air quality targets.

The Government intends to introduce mandatory duties on Local authorities to assess local air quality and, where it is shown to be necessary, prepare local air quality management plans for operation in defined areas where targets are unlikely to be met. The alert threshold for any pollutant or combination of pollutants would define the level at which there is a potential risk of immediate serious damage. If the level were reached or approached in a particular area, it would trigger a mandatory obligation on the relevant pollution control authorities, including the Agency, to take remedial action. The values have been proposed in draft within the National Air Quality Strategy documentation.

### Integrated Pollution Prevention and Control

A European Directive on Integrated Pollution Prevention and Control (IPPC) has been passed. The Directive will be implemented in UK legislation from 1999. The IPPC Directive extends integrated pollution control to a much wider range of activities. For example, certain agricultural operations such as intensive rearing of poultry or pigs will be included.

## **6.3 WASTE**

### **6.3.1 WASTE MANAGEMENT**

#### **Background**

Under the terms of the Environmental Protection Act (EPA 1990), the Agency issues waste management licences permitting the disposal, storage, transfer and treatment of controlled wastes. Certain designated methods of handling waste are deemed to be exempt from the licensing process, those carrying out these activities are obliged to register with the Agency, to maintain a register of such schemes. Carriers of waste materials are obliged to register with the Agency and receive a carrier registration document. Responsibility for investigating incidents of unauthorised tipping of wastes, fly-tipping, and subsequent enforcement action is another Agency duty.

The 1995 Environment Act introduced two additional duties for the Agency in two notable areas. Producer responsibility schemes place an obligation on the producers of certain designated waste streams to take responsibility for their wastes. The first of these, on packaging-waste, came into effect in 1997, with the aim of recycling and recovering 50% of the packaging waste in the UK.

The other key change introduced by the 1995 Act was with regard to contaminated land. Identification of the sites of contamination remains the responsibility of the local authority but the Agency will be responsible, in certain circumstances, for ensuring that remediation is carried out. See 5.2.1.

The key sustainable development objectives for waste and waste management are to minimise the amount of waste which is produced, to make best use of the waste which is produced and to minimise pollution from waste. The UK has defined a hierarchy of waste management options: reduction of waste, re-use of waste, recovery - including recycling, composting and energy recovery - and finally, disposal. The UK Strategy for Sustainable Development aims to move waste disposal higher up the waste hierarchy, taking into account the BPEO (see Issue 7).

In working out the BPEO, the environmental and economic costs are to be taken into account. It is recognised that for some wastes, disposal to landfill may be the BPEO.



### Indicators of Sustainable Development

A number of indicators for sustainable waste management have been established by the DETR within its publication, "Indicators of Sustainable Development for the United Kingdom", which include:

- the quantities of waste generated by various sectors;
- the quantities of waste recycled;
- the quantities of waste from which energy is recovered; and
- the quantities of waste finally disposed of.

These indicators allow the Government's Waste Strategy to be monitored and provide a basis against which to measure waste management practices. They help focus on the key issues and highlight trends. To achieve more sustainable waste management practices, quantifiable targets should provide a mechanism to move the emphasis up the waste hierarchy. The Government has developed a number of indicators of sustainable development with regard to waste and has set targets for its recovery. See 5.2 and Issues 6, 7, 8, 13 & 14.

### **Current Status**

#### Household Waste

Household waste accounts for only 4 - 5% of the 400 million tonnes or so of waste produced in the UK each year. However, it is important that individuals as well as industry and government act to reduce waste production by recycling, re-using and composting waste wherever possible, and by buying long-life, re-usable and environmentally friendly products with minimal packaging. Around 30% of household waste comprises paper and cardboard, 20% is organic matter and 25% is glass, metal or plastic. Approximately 50% of this is recyclable.

The amount of household waste per head of population in England and Wales has risen by only 2-3% over the last ten years, whereas household expenditure rose by 30% over the same period.

In 1991/92 amounts of waste arising totalled 293kg per head. This much slower rise in per capita waste arisings may be due to:

- increased recycling;
- reducing the weight of packaging; and
- substitution of plastic for glass.

To encourage the recovery of waste, including the recovery of energy from waste, the Government has set a target for the recovery of value from 40% of municipal waste in England and Wales by the year 2005. This is in addition to its target to recycle or

compost 25% of household waste by the year 2000.

Individual councils vary in the amounts of waste they recycle. To a degree, this is part of the democratic process in that the priority given to local recycling reflects local budgeting priorities. However, it is also the case that recycling in rural areas tends to be more expensive and therefore harder to justify than in more highly populated areas. Urban areas are better able to develop collection facilities for recyclable materials, whereas sparsely populated rural areas find it difficult to achieve even lower levels of recycling and so alternative approaches to managing household waste arisings are more suitable (see Issue 13).

### Household Waste Recycling and Composting

The proportion of household waste recycled is an important indicator of the extent to which individuals are prepared to take action to help the environment.

Currently around 5% of household waste in the UK is recycled or composted, approximately 90% goes to landfill and the remaining 5% is incinerated. A target has been set to compost 1 million tonnes of organic household waste per annum and for 40% of domestic properties with a garden to carry out composting by the year 2000.

It is also proposed that 80% of households should have easily accessible recycling facilities by the year 2000. This means either the provision of kerbside collection schemes or stand alone facilities for 3 or 4 materials within ½ mile, or within 2 miles where the recycling facility is located with other frequently used facilities.

### Industrial and Commercial Waste

Industrial and commercial waste in the Plan area is estimated to be relatively low and its composition is probably changing as a result of the decline in traditional manufacturing industries and the expansion of the electronics industry. Similarly, changes in the size, structure and working practices of the service sector are affecting the nature and importance of commercial waste.

The Agency is currently progressing initiatives to improve data on waste arisings and disposal, particularly in relation to industrial and commercial waste.

Accurate figures on waste arisings in the Plan area do not currently exist. However, it is known that the amount of industrial and commercial waste generated is quite low. Construction waste is a priority waste stream and as such may be subject to regulations similar to those shortly to affect the packaging industry (see Issue 7).

In total, less than 0.5 million tonnes of industrial and commercial waste is disposed of within the catchment and this is entirely made up of relatively inert wastes from the construction industries. In many cases, this material is suitable for re-use in various

processes, often being crushed and screened with the intention that it be used as a secondary aggregate.

### Special Waste

Special waste arisings account for less than 1% of the total waste stream and arise not only as by-products of industrial processes but also as spent or out of date materials from the business sector. The quantities involved fluctuate annually and reflect:

- changes in manufacturing processes;
- changes in demand for certain products;
- the implementation of waste minimisation techniques; and
- an increase in recycling, re-use or recovery of waste.

The main special waste stream generated and disposed of within the catchment is asbestos. With the recent revision of the definition of special waste, encompassing additional types of waste, the amount of such wastes generated is expected to increase.

### Materials Recycling

Recycling of waste materials can contribute to the conservation of raw materials, reduce pollution from waste disposal and production processes and help make reductions in energy use. A target has been set to recycle 58% of waste glass by 2000 and to ensure that 40% of UK newspaper feedstock is waste paper.

The Producer Responsibility Initiative is a new method for promoting the recovery of value from waste and is designed to ensure that industry takes responsibility for waste arising from the disposal of its products. The most advanced producer responsibility scheme is found in the packaging industry and the UK target is to recover 50% of packaging waste by 2001 and to recycle 25 - 45% of this, with a minimum of 15% recycling for each material. A number of other industries are involved in the initiative including those involved in the recovery of scrap vehicles. Here targets have been set to recover 95% of end of life vehicles by 2015, 65% of scrap tyres and to recycle 90% of waste lead batteries.

All businesses with an annual turnover greater than £5 million which produce more than 50 tonnes of packaging waste a year have obligations to recycle and recover a proportion of this waste starting in 1998. The number of businesses in the area to which these regulations will initially apply is expected to be small, though the turnover threshold is due to reduce to £1m in 2000.

### Energy from Waste

Where the environmental and economic costs of recycling are high, energy recovery from waste may be a more sensible option. This can be achieved through:

- a heat exchange process when waste is burned in either a combined heat and power plant. It is now government policy to encourage combined heat and power schemes through the non-fossil fuel obligation (NFFO);
- by using methane from the degradation of putrescible waste within landfill sites as a fuel to produce electricity; and
- using methane to produce electricity from anaerobic digestion plants.

Since 1992, there has been a sharp increase in the amount of energy recovered from wastes and from landfill gas under the NFFO in England and Wales. Around 1.6 million tonnes of waste was incinerated with energy recovery in 1994. The target is to work towards generating 3,500 megawatts from renewable resources by the year 2000.

Household and commercial waste from the North of the catchment is incinerated at a new waste to energy plant at Haverton Hill, which falls in the Tees LEAP area. The plant will produce 20 MegaWatts per year when operating at full capacity.

#### Waste going to Landfill

Landfill is the most appropriate disposal option for many inert wastes and for wastes which are difficult to burn or recycle. It will remain the predominant waste disposal route for many years. Approximately three quarters of the municipal waste from Scarborough is disposed of to Seamer Carrs in the Derwent LEAP area.

A new landfill site is currently under development at Carlin Howe Farm, Guisborough and will provide a replacement for Claxton Quarry. It will be operated by Cleveland Waste Management Ltd and will be used for the disposal of residue from the new waste to energy plant at Haverton Hill, together with construction and demolition wastes, and household and commercial wastes. It has an estimated lifespan of 15 years, and will be engineered to control pollutants (see Issues 8, 13 & 14 and 5.2).

## **6.4 WATER**

### **6.4.1 WATER RESOURCES**

#### **Background**

Groundwater and surface water together combine to make up the water resource of the area. The quality and quantity of this resource must be protected by achieving a balance between the rights of abstractors, other lawful users of the water, development and the needs of the environment.

The Agency has a duty under the Water Resources Act 1991 to conserve, redistribute, augment and ensure proper use of water resources, whilst at the same time conserving and enhancing the environment. In order to achieve this, the Agency will continue to ensure effective management of the resource by the development and implementation of



### Regional Water Resources strategies and the implementation of Licensing Policy.

The Agency has adopted a new policy for the determination of surface water licences and proposes to review its existing policy for the determination of groundwater abstraction licences. The revised methodologies will aim to ensure that applications are determined in a consistent and even-handed manner and that due regard is given to the needs of the environment, as well as the rights of existing lawful users.

In 1994, following a report by consultants, "Water Resource Development Options For Yorkshire" (Halcrow, 1993), and public consultation, the Region published its Regional Water Resources Strategy. Within the Region, water is used for a variety of purposes including cooling, food processing, irrigation, fish farming, bottling, and private domestic supplies. However, the largest demand on the water resource is from the water companies who abstract water from reservoirs, rivers, springs and boreholes for public water supply.

Forecasting long term changes in demand is a difficult and uncertain process. A large number of assumptions need to be made in relation to what may or may not happen over the forecasting period, which is typically 25 - 30 years. These assumptions relate to factors such as expected population growth, changes in the volume of water consumed per head, levels of industrial activity, the impact of technological changes in industry, the impact of domestic metering, if adopted, and leakage control.

Since the publication of the strategy, the Region has experienced extreme variations in rainfall, including a very wet winter in 1994/95 and the drought of 1995/96. As a result of the drought, it has been identified that an update to the 1994 Water Resources Strategy is required. Work will then commence on producing a new Regional Water Resources Strategy for publication in 1999. One of the issues that will need to be addressed is an increase in emphasis on water conservation/management, including the possibility of aquifer storage recovery.

The Agency seeks to ensure the protection of groundwater resources by the definition of groundwater protection zones and the implementation of these in conjunction with the Agency's Policy and Practice for the Protection of Groundwater. See 5.3.

### Current Status

#### Surface Water

River flows in the plan area are measured on the River Esk at Briggswath. Data is recorded at 15 minute intervals on electronic logging devices. The Regional Telemetry System allows the Agency to have up to the minute information available without the need for staff to be on site. Monthly site visits ensure that the stations are recording correctly and allow a backup set of data to be collected and returned to the office.

The majority of raingauges for which the Agency receives data are manually read by rainfall observers. There are a number of members of the public who daily read an Agency raingauge, often located in their garden. All rainfall data are forwarded to the Meteorological Office, which maintains the National rainfall archives. See 5.3.

The Agency will continue to work with YWS, NWL and Hartlepool Water to reduce leakage rates from water supply grids to acceptable levels and to promote water conservation measures.

### Groundwater

The Agency operates a network of groundwater level observation boreholes across its major aquifers. Data is collected via a combination of automatic data loggers and manual readings. In general, it is winter rainfall which effectively recharges aquifers. During the Summer, evaporation and high soil moisture deficits mean that there is little water available for infiltration into the water table.

During 1996/7, minimum groundwater levels in the Plan area were lower than those of 1995 as a result of the low winter rainfall in 1995 - 1996. However, water levels were generally higher than all time minimums which were recorded in 1976 and 1992. The Agency has continued monitoring the situation closely in 1997. See 5.3.

## **6.4.2 WATER QUALITY**

### **Background**

#### Surface Water

A comprehensive water quality monitoring programme enables the Agency to assess whether or not rivers meet their required quality standards.

Water quality is assessed against the following measures:

- compliance with River Quality Objectives (RQOs), (see Appendix B & Figures 17 & 18);
- compliance with EC Directives, see Appendix C;
- North Sea Reduction Programme, see Appendix C; and
- biological Classes.

The Agency uses two principal schemes for the reporting and management of river water quality: the general quality assessment (GQA) scheme; and the water quality objectives (WQOs) scheme (see Appendix D).

The GQA scheme is used to make regular assessments of the quality of rivers to monitor trends over time and to compare rivers in different areas. Four components are being developed for GQA assessment - general chemistry, nutrients, aesthetics and biology -

each providing a discrete window on the quality of the river stretches. The general chemistry component of the GQA is now in use. It is made up of six grades, A to F, defined by standards for dissolved oxygen (DO), biochemical oxygen demand (BOD) and total ammonia, see Appendix C. In the GQA chemical quality system, A and B are classed as good quality, C and D are fair quality and E and F are poor quality. The remaining three GQA windows are under development and will be applied when available (see Figure 16).

The WQO scheme establishes quality targets based on the uses of the watercourse. The standards defining the five River Ecosystem (RE) Use Classes, which address the chemical quality requirements of different types of aquatic ecosystems, were introduced by the Surface Waters (River Ecosystem)(Classification) Regulations 1994. These uses are likely to include: River Ecosystem; Special Ecosystem; Abstraction for Potable Supply; Agricultural Abstraction; Water sports. For each stretch of river, an RE class WQO will be assigned including a date by which this level of water quality should be achieved. Until WQOs are formally established by legal notice served by the Secretary of State, and therefore exist on a statutory basis, they will be applied on a non-statutory basis with appropriate RE classes and target dates, when the objectives are to be achieved. Standards for further uses are still under development.

Water quality targets set are both long term and short term. Short term targets are realistic targets to be achieved by 2005 and long term targets are achievable aspirational targets which may depend on AMP3 expenditure post 2005 to be achieved.

The Agency is responsible for the protection of controlled waters from pollution. Effluent discharges are controlled by consents and authorisations which impose conditions to regulate the quality and quantity of the discharge. Conditions are set taking account of the upstream quality, the dilution available and the quality required downstream.

Biological criteria form an important component of water quality monitoring as they provide an assessment of the impact of discharges on the aquatic environment. The biological classification used by the Agency is based largely on the presence and abundance of macroinvertebrate species. The status of invertebrate communities can be used to monitor the overall long term health of the river.

Biological water quality can be expressed in various ways but the most convenient method is one which parallels the chemical water quality classification and has classes ranked 1A, 1B, 2, 3 and 4. The biology classes are prefixed with B and indicate 'very good', 'good', 'fair', 'poor' and 'bad' quality. These classes are derived from the interpretation of the types and numbers of the freshwater invertebrate animals present, and knowledge of their tolerance or sensitivity to principally organic pollution. More recently the biological GQA system has also introduced biological classes A - F, based on the match between target values for biotic scores and actual results. See 5.2. The status of invertebrate communities can be used to monitor the overall long term health

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP GOA GRADES - 1996

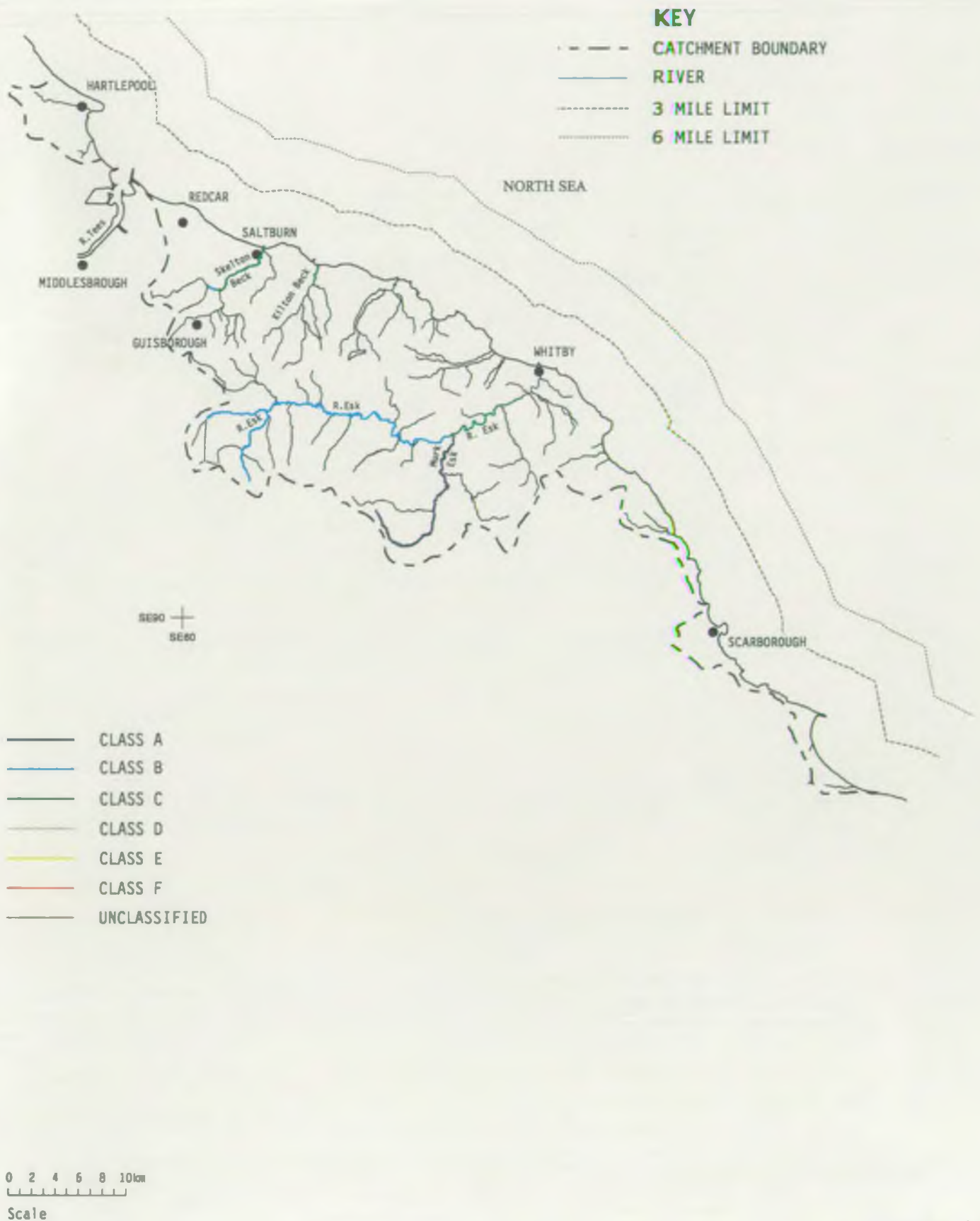


Figure 16



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP SHORT TERM RIVER QUALITY OBJECTIVES



Figure 17

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP LONG TERM RIVER QUALITY OBJECTIVES



Figure 18



of a river.

Previous detailed surveys of the River Esk took place in 1991, and a comparison with 1997 GQA data is shown below:

**Table 7: Summary of biological statistics showing the number of sites sampled and percentage of sites of each biological GQA class sampled in 1991 and 1997.**

Biological Class	1991 No.	1991 %	1997 No.	1997 %
A - Excellent	9	45	6	20
B - Good	6	30	7	23
C - Fairly Good	5	25	9	30
D - Fair	-	-	5	17
E - Poor	-	-	2	7
F - Bad	-	-	1	3

The difference in the GQA classes between 1991 and 1997 can partly be explained by the increased sampling programme carried out in 1997. The biological communities in many of the upper tributaries and in the main River Esk near Westerdale are classed as fairly good © to bad (F) using the General Quality Assessment (GQA) scheme. The poor invertebrate faunas in these streams are mostly caused by natural flushes of acidity from the peat moorland and by natural ochrous run-off and deposition arising from the iron-rich sandstone and Lias. Examples of these are Stockdale Beck, Clough Gill and the River Esk on Westerdale Moor. Many of the Murk Esk tributaries, Brocka Beck and Rutmoor Beck for examples, are also affected by acid and ochrous run-off, leading to a classification of D in the GQA scheme. This is a problem largely in the headwater stretches. From Castleton downstream to Briggswath the main river Esk is classed as good (B) or excellent (A), with abundant and diverse faunal communities present. Many other tributaries throughout the Esk catchment are classed as excellent or good. However, some are affected locally by certain farming practices (see Figure 19).

Monitoring has illustrated that 8% show an upgrade in quality, 58% a downgrade in quality, and 34% no change. The probable cause of this reduction in biological quality are the drought conditions experienced in 1995 and 1996, with many small streams drying up, or becoming ponded. Low rainfall also resulted in more persistent smothering from ochre which has accumulated in some of these streams.

Analysis of some of the data collected in 1997 from the streams draining directly to the coast indicate biological water quality to vary from excellent (A) to fairly good (C). 1997 survey analysis is yet to be completed.

# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP BIOLOGICAL WATER QUALITY 1995 - 1997



Figure 19



Depending on the degree of wave exposure and other factors, the shores of the plan area may be either relatively bare of algae and dominated by limpets and barnacles, or have an extensive cover of brown algae such as bladder wrack and serrated wrack. A diverse array of red algae and large brown kelp occur at extreme low-tide levels. Extensive linear beds of rough-stemmed kelp are common along the coast, and this species reaches its southern limit of distribution at Flamborough. On the very exposed northern side of Filey Brigg, oarweed is present. Many of the shore animals living among the rocks and algae are small and cryptic but occasionally large species can be found, including sea urchins, sea hares and lumpsucker fish.

Small sandy bays are present at intervals along the coast which support a smaller range of organisms which are usually buried in the sand. The more exposed beaches have sparse faunas predominantly burrowing amphipod shrimps and a few species of catworms and spionid worms. At low tide levels, razor shells, tellins, common shrimps and sand eels can be found in the sand. More sheltered sandy and muddy sand areas have much richer polychaete worm faunas, and faecal casts of lugworms can be a common sight.

Discharges from small sewage outfalls at Staithes, Runswick Bay, Sandsend, Robin Hood's Bay and Filey have localised impacts on these shore communities, encouraging the growth of green filamentous seaweed, edible mussels and common periwinkles. More extensive zones of impact occur at Whitby and Cornelian Bay. At these sites, vast numbers of common periwinkles graze on the rock surfaces, discouraging the settlement and establishment of seaweeds and their associated fauna, whilst in the sheltered muddy sand enormous numbers of organic-tolerant polychaete worms thrive. Similar conditions existed on the Northern side of Scalby Ness, Scarborough, where the large short sewage outfall once discharged, but since the long sea-outfall was commissioned, the Agency has detected changes in the shore communities as they recover from the organic enrichment effects caused by the old system, notably in the Jackson Bay area. Proposals by YWS to improve treatment at Whitby and Filey should result in better quality coastal ecology.

A new plant is being built at Bran Sands for the treatment of industrial effluent and sewage. This plant will eliminate the need for the dumping at sea of sewage sludge arising on Teesside which must cease by the end of 1998. The practice is already being phased out across the country with alternative facilities being sought, including landfill. Where sludge is deposited directly on land, controls on the concentrations of heavy metals apply to protect surface and groundwater resources. The Bran Sands treatment plant however, will provide for a more sustainable approach to the management of sewage since the sludge will be dried and pelletised for use as a fertiliser or fuel. See 5.2.

### Groundwater

Aquifers provide storage for considerable volumes of high quality water which often requires little or no treatment before being put into supply. Groundwater also provides the baseflow of many river systems which may be used for drinking water, industrial and

agricultural purposes as well as for fishing and other recreational activities. The quality of this baseflow is therefore an important aspect in maintaining surface water quality in these areas.

Once groundwater is polluted rehabilitation is very difficult, if not impossible, and is always extremely expensive. It is therefore vital that the quality of this resource is protected. Under the Water Resources Act 1991 (WRA91), a framework is established for water quality objectives. The framework applies to both surface water and groundwater and includes a system for classifying water quality which would enable the Secretary of State to set Water Quality Objectives (WQOs). These would require that specific targets for water quality should be achieved and maintained.

At present, no WQOs have been set for groundwater. However, in order to set targets at some point in the future, and to comply with the Agency's general duty under the WRA91 to monitor controlled waters, it is important that baseline data are available on groundwater quality. The Agency has therefore established a groundwater quality monitoring network across the Dales Area. The network was established in 1995 and will be used both to assess current groundwater quality and to identify trends that may occur in the longer term. Data may also highlight areas where groundwater has become polluted and further investigation is required.

The Agency document, "Policy and Practice for the Protection of Groundwater" (1992) which has been updated from an NRA document, provides guidelines and the measures that the Agency will seek to take to protect both the quality and quantity of the groundwater resource.

The policy classifies rock types into major aquifers such as the Magnesian Limestone, Corallian Limestone and Sherwood Sandstone; minor aquifers such as the Ravenscar Group; and non-aquifers such as the Kimmeridge Clay. The vulnerability of the aquifer to pollution is assessed from the type and thickness of soil and drift cover. A series of protection zones will be delineated for the major groundwater sources where the water is used for drinking water supplies or other purposes such as food processing or water bottling. The document sets out guidelines to be used as a framework for decision-making on groundwater issues and also contains a number of different policies which are aimed at protecting the groundwater resource. The policies, which are not statutory, relate to potentially polluting activities such as landfill, contamination of land, use of soakaways, including road and rail drainage, effluent discharges and diffuse sources of pollution.

## **Current Status**

### Surface Water

The catchment as a whole is one with very good water quality with the exceptions stated below.

*The River Esk*

The main river meets the long term chemical quality objective for the whole of its length. The tributaries of the Esk are also, generally, of very good quality. Becks such as Rutmoor Beck, West Beck and Wheeldale Gill arise on the peat moorland and afforested areas of the North York Moors and are known to be affected by natural acidity.

Other minor tributaries such as Tower Beck and Great Fryup Beck are suspected to receive intermitant sheep dip pollution. A series of inspections have identified several potential sources of sheep dip contamination. Measures have been implemented to ensure that no further sheep dip can gain entry into the watercourses and future monitoring will identify whether any further work is required.

*Skelton Beck*

The completion of the NWL coastal scheme for Saltburn and Brotton has been linked to work on the sewerage system in general. A number of storm sewage overflows have been abandoned or significantly altered to reduce the frequency of operation. Four underground storm tanks have been constructed to collect sewage and rainwater during heavy storms. The contents of the tanks are returned to the normal sewers when the storm has abated. The result of these activities has been compliance with the Bathing Water Directive at Saltburn and improved water quality in Skelton Beck.

*Kilton Beck*

Kilton Beck has historically suffered from minewater discharging to the lower reaches at Skinningrove. Loftus Development Trust are looking at ways to rectify this problem as part of a community project and linked partnership with organisations such as the Agency, the Local Authority and Cleveland Wildlife Trust.

*Easington Beck*

Although Easington Beck is usually good quality, it has been linked to failure of the Bathing Water Directive at Staithes. This is yet to be proven and the Agency is currently gathering evidence to substantiate or refute this claim.

*The Tees Estuary*

The quality of water from the Tees Estuary to coastal waters is generally poor. However, the Estuary is beginning to recover from the chronic pollution from the development of the iron and steel and chemical industries.

*Coastal Waters*

Generally the bathing waters comply with the EC Bathing Water Directive (see Appendix C). However failures have occurred regularly at Staithes. Occasional failures have occurred at Scarborough (South), Cayton, Robin Hood's Bay, Redcar, and this year at Sandsend. Proposed work by YWS should improve overall compliance for the designated bathing beaches.

Long sea outfalls with preliminary treatment have been installed by NWL at Seaton



### Carew and Marske.

The Agency intends to carry out further investigatory work in order to improve the quality of freshwater inputs to bathing waters where necessary. Recent investigations conducted by Leeds University on Staithes Beck indicate that many of the freshwater inputs may have a high 'natural' bacterial content. This is especially apparent after heavy rainfall because of the intensive use of the agricultural land within the catchments for livestock rearing.

Britmag at Hartlepool, makes significant discharges to the North Sea. Britmag have eight consented outfalls discharging effluent which is of good quality and has little impact on the water environment.

Liquid effluents from Hartlepool Nuclear Power Station are routed to active effluent treatment plants and, following treatment, collected in final monitoring and delay tanks for monitoring prior to discharge. Liquid effluents arising from coolant gas conditioning systems or driers are routed to treated water storage tanks prior to monitoring and discharge. Treated effluents are then discharged into the North Sea. The Agency has a programme to monitor radioactivity in the environment. Samples of sand taken at Seaton Carew and samples of surface and public water samples found levels consistent with natural levels.

### Groundwater

Most of the plan area is underlain by minor or non aquifers. The Agency is in the process of developing a groundwater quality monitoring network. Monitoring of groundwater within the major aquifers has commenced and there are plans to expand the network to include the minor aquifers such as those found in the Esk and Coast area.

There are many springs emanating from the limestone outcrops associated with two major outcrops of limestone in the area. Many of these springs form major sources of good quality potable water for public and private supply. Since these springs issue at ground level they are particularly vulnerable to contamination from surface activity.

Groundwater quality is not only influenced by potentially polluting activities, but also varies as a result of different rock types. Within the plan area, quality of groundwater is affected by high levels of iron due to iron rich deposits in the water bearing horizons.

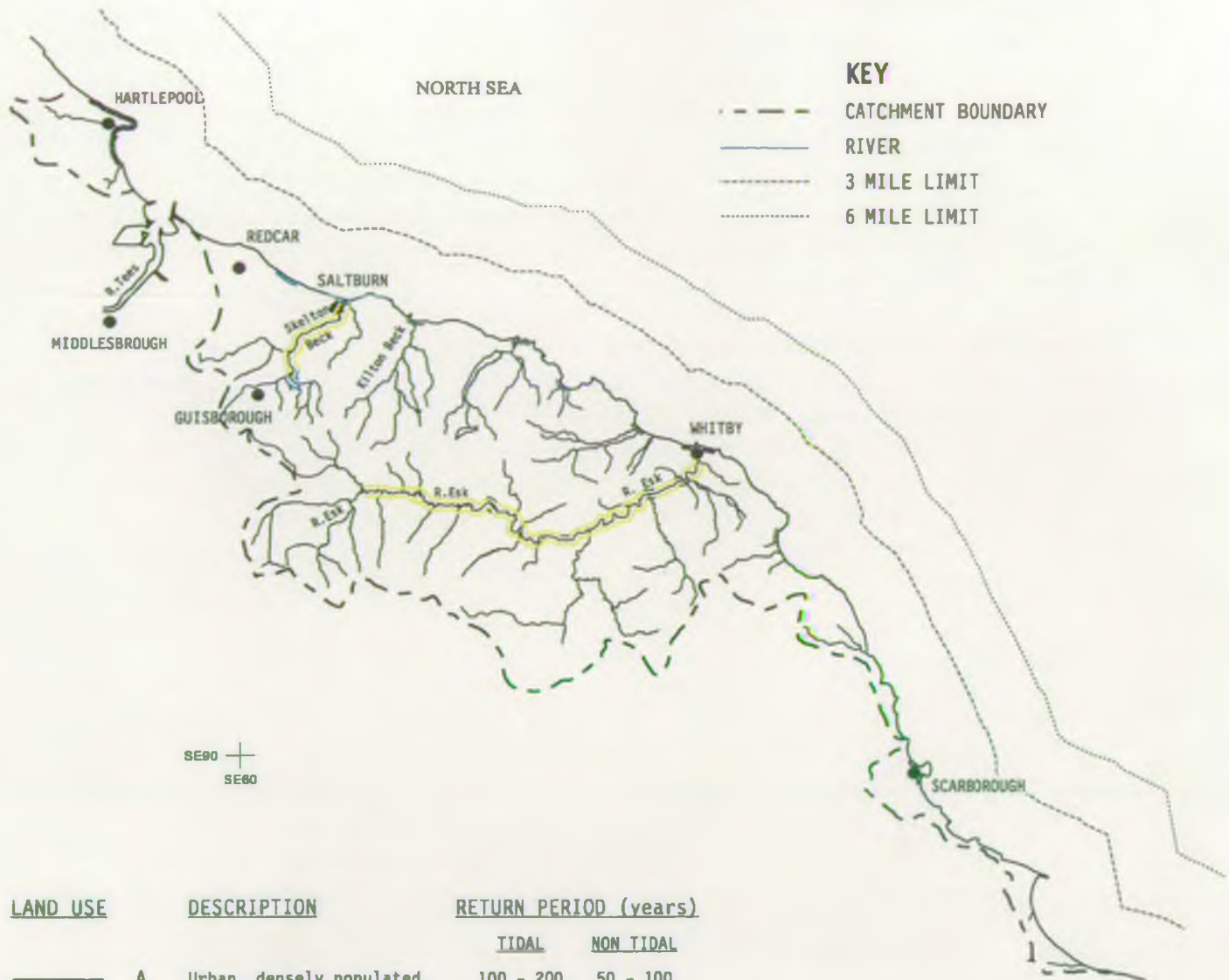
## 6.4.3 FLOOD DEFENCE

### Background

The decision as to whether or not flood defences will be provided or improved involves consideration of many aspects, including cost effectiveness, environmental acceptability and the wishes of the local population.



# ESK AND COAST (HARTLEPOOL TO FILEY BAY) LEAP FLOOD DEFENCE INDICATIVE STANDARDS OF SERVICE



LAND USE	DESCRIPTION	RETURN PERIOD (years)	
		TIDAL	NON TIDAL
—	A Urban, densely populated.	100 - 200	50 - 100
—	B Residential, but lower density than A.	50 - 200	25 - 100
—	C Isolated rural/coastal communities.	10 - 100	5 - 50
—	D Isolated properties agricultural land.	2.5 - 20	1.25 - 10

0 2 4 6 8 10 km

Scale

Figure 20

As an aid to decisions on the priorities for works, the Agency has determined Standards of Service for flood defences based on land usage within the floodplain. Five land use bands have been established, based on the presence and concentration of certain features of land use. These include housing, commercial property, agriculture and transport networks. Such features are each allocated a financial value, based on the potential losses that would ensue if the features were subject to flooding, which allows comparison of different features on the same basis.

Each land use band has a target for the maximum flood risk to which it should be exposed. The standards are expressed as a percentage which reflects the likelihood of flood during any one year, which exceeds the capacity of defence protection that is available or should ideally be provided. For example, a standard of 2% means that, for any given year, the likelihood of a flood flow occurring which significantly affects key land use features, is 1 in 50, or 2%.

Details of the targets and land use bands are given in the table below which shows the various land use bands for main river and the coast in this area. See 5.4 and Figure 20.

**Table 8: Flood Defence Standards of Service**

Standards of service land use bands and targets			
Land use band	Description of typical land use	Target standard of protection (return period)	
		Fluvial	Saline
A	Urban	1:50 - 1:100	1:100 - 1:200
B	Lower density urban	1:25 - 1:100	1:50 - 1:200
C	Isolated rural communities	1:5 - 1:50	1:10 - 1:100
D	Isolated properties/intensive farming	1:1.25 - 1:10	1:2.5 - 1:20
E	Low grade agricultural land	<1:2.5	<1:5

A comparison of the target and actual standards of service allows improvement and maintenance works to be prioritised towards those rivers which do not meet their target standards.

## 6.5 **BIODIVERSITY**

### **Background**

The biodiversity convention originated from the Earth Summit in Rio in 1992. The convention requires that national programmes for the conservation of biological diversity

are developed. The UK Government's response to the biodiversity convention, 'Biodiversity: The UK Action Plan' was published in 1994 and sets out the broad strategy for conserving and enhancing wild species and wildlife habitats in the UK for the next 20 years. The stated overall goal of the UK Action Plan was- "to conserve and enhance biological diversity within the UK and to contribute to the conservation of global biodiversity through all appropriate mechanisms".

Under the UK plan, the 'UK Biodiversity Steering Group' (a national group including representatives of the Agency) was established, which produced the 'UK Steering Group Report'. Endorsed by the Government in May 1996, the Report promoted the use of Local Biodiversity Action Plans (BAPs) as a means of implementing the National Plan. The Report includes costed action plans for a short list of 116 of the most threatened and declining species and 14 habitats. Middle (286 species) and long (1250 species) lists were also produced. Each Action Plan describes the current status, factors causing loss or decline, current action, objectives, targets, and proposed actions.

There are a number of identifiable roles within this process:

- Plan development - involvement in National and Local plan production;
- Contact Point - responsible for stimulating action to achieve targets, monitoring results and reporting progress;
- Lead Partner - responsible for preparing detailed work plans, directing resources and overseeing plan implementation; and
- Responsible Organisation - responsible for implementing actions identified in plans.

### **Current Status**

In order to meet the overall objectives of Biodiversity, whilst recognising its obligation to consider costs and benefits, the Agency has adopted the following policies:

- Priority will be given to achievement of actions required under the UK Plan before resources are dedicated to implementing additional actions in Regional or County Biodiversity Action Plans;
- Unless there is clear evidence to the contrary, the Agency will assume that maintenance of existing environmental standards is sufficient to provide the levels of protection required by individual species and habitat plans; and
- In prioritising new and existing activities to meet actions under the UK Plan, the Agency will, as well as considering relative costs, give priority firstly to those plans where Agency action is required to prevent a decline in status, (rather than maintain the status quo or effect an improvement), and secondly to those that are most dependent on the powers and expertise unique to the Agency.

Species/Habitats for which the Agency has special responsibility

The Agency has taken special responsibility (national contact point/lead partner) for 15 species which are dependent upon the aquatic environment and one aquatic habitat - chalk streams. Two of these species are found in the Esk and Coast catchment: the otter (*Lutra lutra*) and the water vole (*Arvicola terrestris*).

Species or Habitats producing actions for which the Agency is the Responsible Organisation

An individual member of the Agency has been identified as the contact for each species and habitat generating actions for which the Agency is responsible. Details of contacts are held in the Agency's office in York.

Local BAPs and Agreements

Local initiatives may produce plans and targets for species and habitats which are not on the national list. Where such plans exist, or are currently being drawn up, for example the North York Moors Local BAP, the Agency supports such plans in principle but must consider other priorities in the Dales Area before any resources can be committed (see Issue 3 and 5.6.1).



## **APPENDIX A: ENVIRONMENT AGENCY AIMS AND STRATEGIES**

### **Introduction**

The Agency was established on the 1 April 1996. The main aims and strategies of the Agency are detailed below, along with an introduction to each of its functions.

### **Aims**

The main aims of the Agency are:

- To achieve significant and continuous improvement in the quality of air, land and water, and actively encourage the conservation of natural resources, flora and fauna;
- To maximise the benefits of integrated pollution control and integrated river basin management;
- To provide effective defence and timely warning systems for people and property against flooding from rivers and the sea;
- To achieve significant reductions in waste through minimisation, re-use and recycling and to improve standards of disposal;
- To manage water resources and achieve a proper balance between the needs of the environment and those of abstractors and other water users;
- To secure, with others, the remediation of contaminated land;
- To improve and develop salmon and freshwater fisheries;
- To conserve and enhance inland and coastal waters and their use for recreation.
- To maintain and improve non-marine navigation;
- To develop a better informed public through open debate, the provision of soundly based information and rigorous research; and
- To set priorities and propose solutions that do not impose excessive costs on society.

### **Water Resources**

It is the Agency's responsibility to assess, plan and conserve water resources. The Water Resources Act 1991 describes the duty of the Agency to ensure that measures are taken towards the conservation, redistribution, augmentation and proper use of water resources. The Act requires the Agency to make arrangements with water and sewerage undertakers and statutory water companies to secure the proper management and operation of water resources and associated works. To effect these requirements the Agency controls abstractions by a licensing system and has the power, if necessary, to issue drought orders and designate water protection zones and nitrate sensitive areas.

Under the Water Resources Act 1991 all abstractions require a licence except for those of less than 20 cubic metres a day for domestic or agricultural use from surface water, and those of less than 20 cubic metres per day for domestic use from groundwater. There are also other

exceptions for small abstractions from boreholes and springs. Charges for abstraction are based upon licensed quantity, source, season and loss.

To secure the proper management of water resources, the Agency operates a hydrometric network of rainfall stations, groundwater observation boreholes and river flow gauging stations. These provide not only data for water resources assessment but also for flood prediction, impact of effluent discharges, fisheries management, conservation and recreational uses.

The Agency's strategic objectives regarding water resources are:

- To plan for the sustainable development of water resources, developing criteria to assess the reasonable needs of abstractors and of the environment;
- To collect, validate, store and provide hydrometric and water environment data in order to assess water resources;
- To apply a nationally consistent approach to abstraction licensing, including licence determination, charging, policy and enforcement;
- To implement a consistent approach to the resolution of inherited problems caused by authorised over-abstraction; and
- To work with other functions and external bodies to protect the quality of our water resources.

## Water Quality

An aim of the Agency is to maintain and improve the quality of rivers, estuaries, coastal waters and groundwater through the control of water pollution. This aim is fulfilled via water quality management, effluent quality regulation, pollution incident investigation, and pollution prevention.

Water quality management is based principally on monitoring of the environment to establish chemical, biological and microbiological quality. These areas of data are used by the Agency to detect trends, plan improvements and execute its statutory duties regarding the setting of discharge parameters and compliance with EC directives.

The Agency controls inputs into the environment via the issue of consents. Discharges from industrial, agricultural, domestic and sewage-related sources are regulated by specification of effluent quality limits and conditions which the discharger must achieve. Such discharges are monitored routinely and failure to satisfy consent conditions may lead to legal action being taken.

The Agency makes an immediate response to all reports of pollution. During a pollution incident investigative actions are taken to identify the source, stop the discharge, minimise its adverse effects and ensure that remedial work, where appropriate, is completed. Legal action is considered in cases of serious and/or repeated incidents.

Pollution prevention via development control and advice on best practice to industry, farmers,

water supply and sewage companies is carried out in support of water quality management to prevent deterioration of the water environment.

The Agency's strategic objectives regarding water quality are:

- To maintain waters that are already of high quality;
- To improve waters of poorer quality;
- To ensure that all waters are of an appropriate quality for their agreed uses;
- To prosecute polluters and recover the costs of restoration from them; and
- To devise charging regimes that allocate the costs of maintaining and improving water quality fairly and provide an incentive to reduce pollution.

### **Integrated Pollution Control**

The Agency is responsible for regulating over two thousand of the most complex and potentially polluting types of process under the regime of Integrated Pollution Control. This is a preventative philosophy which requires operators to use the Best Available Techniques Not Entailing Excessive Cost (BATNEEC) to prevent and minimise or render harmless the release of harmful substances to the environment. In addition, the Best Practicable Environmental Option (BPEO) should be used where the releases from the process are to more than one of the environmental media, namely air, land and water, to minimise the overall effect on the environment.

### **Radioactive Substances**

The Agency regulates the keeping, use and disposal of radioactive substances. Registrations are issued to keep and use radioactive materials and authorisations for accumulation and disposal of radioactive waste. The use of radioactive substances should be justified and regulated so that radiation doses to the environment are 'As Low As Reasonably Achievable' (ALARA).

### **Waste Regulation**

The Agency is responsible for regulating the waste disposal industry through the Environmental Protection Act 1990 and other legislation. This includes controlling the storage, transport, reclamation or final disposal of all controlled waste in order to prevent pollution of the environment, harm to human health and loss of local amenity.

The main functions and activities of the Agency with regard to waste management are as follows:

- Licensing waste management facilities;
- Regulation of IPC processes which involve waste;
- Subsequent supervision of licensed activities;
- Operation of enforcement procedures aimed at unauthorised activities;
- Technical administration to regulate and monitor the movement of special waste -

- including international movements;
- Registration of waste carriers and brokers and promotion of the Duty of Care;
- Registration of activities exempt from licensing;
- Collection of information about waste arisings and the preparation of a waste management plan;
- Responding to planning consultations where issues concerning waste may be a relevant factor; and
- Maintenance of a public register and the general provision of waste management information, pollution prevention information and advice.

There are a number of wastes which are not controlled by the Agency. Currently these are :

- Gaseous emissions (except gaseous emissions from waste disposal and recovery operations, such as landfill gas or those from IPC processes);
- Waste from mining and quarrying operations;
- Decommissioned explosives; and
- Agricultural waste.

## Conservation

The purpose of the conservation activities of the Agency is to:

- Conserve and enhance the wildlife, landscapes and archaeological features associated with inland and coastal waters; and
- Promote the conservation of aquatic flora and fauna.

The Agency's statutory duties under the Environment Act 1995 are to further the conservation and enhancement of natural beauty in respect of proposals relating to Agency functions (other than pollution control functions for which the Agency must have regard to conservation), protect sites of conservation interest and take into account the effects that any proposed developments would have. This is achieved by regulating the work of others through the land use planning consultation process and the issuing of consents under the Land Drainage Act 1991 and Water Resources Act 1991 for works adjacent to rivers. The Agency also carries out a programme of conservation works using its own workforce, in addition to assessing the conservation implications of other functional activities.

The Agency's strategic objectives in relation to conservation are:

- To assess and monitor the conservation status of inland and coastal waters and associated lands;
- To ensure that the Agency's regulatory, operational and advisory activities take full account of the need to sustain and further conservation; and
- To promote conservation to enhance the quality of the aquatic and related environments for the benefit of wildlife and people.



## Recreation

The main objectives of the Agency is respect to recreation are:

- To protect recreational interests and create opportunities for recreation in the course of the Agency's work;
- To make best use of the Agency's sites for recreation;
- To promote an increase in the quantity, quality and diversity of access opportunities;
- To reduce conflicts between different users;
- To understand the recreational impact on the environment and to mitigate where necessary; and
- To raise awareness of the opportunities and benefits of recreation.

Recreation includes the provision of opportunities and facilities for sports associated with water and the surrounding land, passive activities around water including public access and rights of way and the general aesthetic quality of the water environment.

The Agency has no active navigation responsibility in this plan area.

## Fisheries

The general fisheries duties of the Agency are set out in the Environment Act 1995. Under this Act, the Agency is responsible for the regulation of fisheries through the application of orders, byelaws and licensing systems.

An essential feature of the 1995 Act is the statutory duty placed on the Agency to *maintain, improve and develop fisheries*. The term 'fisheries' encompasses both the recreational fishery and the fishery as an environmental resource. However, the Act extends further to cover effectively all inland waters which have the capacity to support fish, other than fish farms; which are regulated by MAFF. Recreational fisheries include waters such as rivers, streams, canals, lakes, ponds and reservoirs.

In order to discharge its statutory duties, the Agency undertakes a wide range of fish surveillance and monitoring activities. Fish populations are biological indicators of changes in river flow, quality and habitat. The regulation of fish introductions and fish capture are also important.

The costs of the fisheries service are met, in part, by funds raised from rod licence sales.

The strategic objectives of the Agency's fisheries function are:

- To protect and conserve salmon, trout, freshwater fish, eel and, where appropriate, coastal fisheries;
- To regulate fisheries through the enforcement of a consistent series of licences, orders, byelaws and consents;

- To monitor the fisheries status of rivers and inland estuaries and, where appropriate, coastal waters;
- To formulate policies to maintain, improve and develop fisheries, and to restore and rehabilitate damaged fisheries; and
- To provide an efficient and effective fisheries service which is responsive to the needs of its customers and is based on a sound charging system.

## **Flood Defence**

The Agency has powers to:

- Protect people and property against flooding from rivers and the sea;
- Provide a means for the drainage of land; and
- Provide adequate arrangements for flood forecasting and warning.

Certain water courses are designated as 'main river'. On main rivers, the Agency has permissive powers to construct new defences, maintain defences, and control the actions of others so that the risk to existing and future uses, eg development, can be minimised. The Agency is the primary body involved in flood defence matters but on 'ordinary watercourses' district or borough councils are the first point of contact. For flooding from sewers, responsibility rests with either the district or borough council or the water undertaker.

The standard of flood protection can be measured in terms of the flood frequency, eg 1 in 50 years, on average, up to which it will prove effective. The standards considered appropriate vary according to the land use to be protected and the economics of providing the service.

These activities are undertaken under the Water Resources Act 1991 and are directed by the Regional Flood Defence Committee. In addition to works on statutory 'main rivers', the Agency also has powers to control weirs and culverts which can affect the flow on ordinary watercourses.

The Agency's strategic objectives in relation to flood defence are:

- To develop and implement the flood defence strategy through a systematic approach for assessing capital and maintenance requirements and develop medium and long-term plans for those defences owned and maintained by the Agency;
- To encourage the development of information technology and the extension of facilities which will further improve the procedures for warning of, and responding to, emergencies;
- To support R & D which will assist in identifying future flood defence needs;
- To review best practices for all operational methods, and the identification and justification of work, thus increasing efficiency and enhancing value for money;
- To heighten general awareness of the need to control development on flood plains and contribute to the development of Local Environment Agency Plans;
- To identify opportunities for the enhancement of environmental, conservation,

- recreational and amenity facilities when undertaking flood defence works; and
- To undertake river maintenance operations in accordance with conservation guidelines for good practice.

### **Navigation**

The Agency's future strategy for navigation is to take a lead in working with other navigation authorities to bring about a more consistent approach to the administration of navigation in inland waters than currently exists in England and Wales. The Agency has no navigation powers in this LEAP area.

### **Land Use Planning**

The Agency is a statutory consultee of the land use planning system and seeks to ensure that local authorities take into account the needs of the water environment when preparing development plans and determining planning applications. Promotion of source control techniques by local authorities would assist in this process.

A close working relationship is required with county, district and borough councils on mineral workings, waste disposal issues, infrastructure works, works within river corridors or floodplains, and any activities likely to pollute surface waters or groundwaters, increase the demand for water resources or adversely affect the conservation and amenity value of the environment.

Guidance Notes For Local Planning Authorities on the Methods of Protecting the Water Environment through Development Plans have been produced (NRA, September 1993), and these are being promoted in conjunction with the initiative to prepare LEAPs. Guidance Notes are being updated and will be published by 1998.

## APPENDIX B : CHEMICAL STANDARDS FOR RIVER ECOSYSTEM CLASSIFICATION

The Water Quality Objective (WQO) scheme established quality targets based on the uses of the watercourse, to provide a commonly agreed planning framework for regulatory bodies and dischargers. The proposed WQO scheme is based upon the recognised uses to which a river stretch may be put. These uses could eventually include: River Ecosystem; Special Ecosystem; Abstraction for Potable Supply; Agricultural Abstraction; and Water sports. The standards defining the five River Ecosystem (RE) use classes, which address the chemical quality requirements of different types of aquatic ecosystems, were introduced by the Surface Waters (River Ecosystem) (Classification) Regulations 1994. For each stretch of river, an RE class WQO will be assigned including a date by which this level of water quality should be achieved.

**Table 9: Chemical Standards for River Ecosystem Classification.**

Class	Dissolved Oxygen % saturation 10 percentile	BOD (ATU) mg/l 90 percentile	Total Ammonia mg / l N 90 percentile	Un-ionised Ammonia mg / l N 95 percentile	pH lower limit as 5 percentile; upper limit as 95 percentile	Hardness mg/l Ca CO <sub>3</sub>	Dissolved Copper µg/l 95 percentile	Total Zinc µg/l 95 percentile
RE1	80	2.5	0.25	0.021	6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 > 100	5 22 40 112	30 200 300 500
RE2	70	4.0	0.6	0.021	6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 > 100	5 22 40 112	30 200 300 500
RE3	60	6.0	1.3	0.021	6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 > 100	5 22 40 112	300 700 1000 2000
RE4	50	8.0	2.5	-	6.0 - 9.0	≤10 >10 and ≤50 >50 and ≤100 > 100	5 22 40 112	300 700 1000 2000
RE5	20	15.0	9.0	-	-	-	-	-

Class RE 1: Water of very good quality (suitable for all fish species).  
 Class RE 2: Water of good quality (suitable for all fish species).  
 Class RE 3: Water of fair quality (suitable for high class coarse fish populations).  
 Class RE 4: Water of fair quality (suitable for coarse fish populations).  
 Class RE 5: Water of poor quality (likely to limit coarse fish populations).  
 Unclassified: Water of bad quality (fish are unlikely to be present), or insufficient data available by which to classify water quality.



## APPENDIX C : EUROPEAN DIRECTIVES

A number of European Directives are relevant to the Esk and Coast plan area relating to the water environment.

### *European Commission (EC) Directives*

The introduction of the European Commission (EC) Directives from 1976 to protect the water environment has had a significant impact on water quality issues. The United Kingdom has adopted the appropriate directive requirements and is incorporating them into UK legislation to complement other Agency water quality improvement measures and monitoring schemes.

Annual reports are made by the Agency to the DETR for fresh and saline waters using results from a comprehensive sampling and analysis programme. Quality assessments are made using specific numerical standards which are currently the only statutory water quality requirements. Where waters do not comply with the standards, the Agency is required to develop improvement plans to ensure the situation is remedied within an identified timescale.

### *The Surface Water Abstraction Directive (75/440/EEC)*

The Directive ensures that water abstracted from rivers or reservoirs for drinking purposes achieves standards prior to treatment and distribution to public supply. Formal arrangements are in place between the water companies and the Agency to address non-compliance and other issues.

### *Dangerous Substances Directive (76/464/EEC)*

The Directive sets numerical standards for identified substances, which are particularly harmful to the water environment, and these must be achieved in all waters. New substances are introduced by the EC at intervals as new environmental initiatives are taken.

Compliance with Dangerous Substances Directive is assessed by monitoring for specific substances downstream of registered discharges, and at a reference site in the lower reaches of the catchment.

### *The Bathing Water Directive (76/160/EEC)*

The Bathing Water Directive was adopted by the Council of European Communities in 1975.

### *The Freshwater Fisheries Directive (78/659/EEC)*

The Freshwater Fisheries Directive requires that where rivers are designated as suitable for salmonid or cyprinid fish populations, the Directive's water quality standards must apply.

New designations may be made by notifying the DETR and permanent deterioration of designated waters is not permitted.

### *The Groundwater Directive (80/68/EEC)*

The purpose of this Directive is to prevent the pollution of groundwater by certain dangerous substances which are listed in the Annex to the Directive. The main thrust is to prevent

substances from List 1 entering groundwater and to limit the introductory of substances in List II so as to prevent groundwater pollution.

*The Urban Waste Water Treatment Directive (91/271/EEC)*

The Directive will apply to discharges of domestic sewage and similar industrial discharges with population equivalents in excess of 2000, made to fresh and saline waters and will be implemented in the period up to 2005. Standards will be set for discharge quality levels of treatment being specified according to the receiving water quality and characteristics.

*The EU Wildbirds Directive 1979 (79/409/EEC)*

The Wildbirds Directive aims at protecting populations of wild bird which are significant in a European context. These may mean rare or endangered species or large concentration of more common species at some stage in their life cycle eg on a breeding site, feeding ground or over wintering area. Member states are required to designate sites which meet the criteria of supporting such a population as a Special Protection Area (SPA).

*North Sea Reduction Programme*

Since 1987, the UK has adopted national and international initiatives to reduce pollution in the North Sea. The Paris Commission programme and the UK Red List substance initiative have estimated pollutant loads from rivers and discharges as a first step towards the identification of improvement measures.

Progress has been made with load reductions by the issue of consent conditions for appropriate discharges to achieve a 50 - 70% reduction over a period 1985-1995.

*The Integrated Pollution Prevention and Control Directive*

Integrated Pollution Control was introduced to the UK in 1991. Since then, industrial processes with a significant potential to release substances to air, water and land have been authorised under this new integrated regime. The original regulations have been modified and refined to provide an effective and apt means of regulating a select group of complex industrial processes.

The EC introduced Directive 96/61/EC, Concerning Integrated Pollution Prevention and Control in September 1996. The requirements of this Directive will be implemented in the UK from October 1999. The likely effect of the introduction of this Directive will be to:

- Alter the definition details of processes currently authorised under IPC in order to standardise across the whole of the EC;
- Introduce new industries eg large landfill sites, intensive livestock production to the system of integrated pollution regulation; and
- Introduce new or extend the scope of pollution control eg noise.

The Agency will implement any new, or changed, regulations relevant to its remit, will willingly provide advice and guidance to other organisations and will put its own expertise and experience in integrated environmental management at the disposal of the policy-makers.

*The EC Habitats Directive*

The EC Habitats Directive was adopted in May 1992, requiring Member States to endeavour, where necessary, to encourage the management of features of the landscape which are of major importance for wild flora and fauna with a view to improving the ecological coherence of the Natura 2000 network, and could be largely achieved via land use planning and development policies. Domestic legislation to implement this, in the form of Statutory Instrument No. 2716 The Conservation (Natural Habitats & c) Regulations 1994, became law on 30 October 1994.

The Regulations include :

- Definitions, including relevant and competent authorities;
- Provision for the selection and designation of European sites;
- Provision for the protection and management of sites;
- Provision for the protection of certain species; and
- Measures to adapt planning and certain other controls.

Linear and continuous features, such as rivers and their banks or the traditional systems for marking field boundaries, or those functioning as stepping stones for the migration, dispersal and genetic exchange of wild species, are noted as habitats to be particularly protected.

**Proposed Legislation***Groundwater Regulations*

The EU has ruled that the UK has failed to properly transcribe the Groundwater Directive into UK law. In order to rectify this position the UK Government has drafted the Groundwater Regulations. These regulations will give powers to the Agency to control discharges or activities which might lead to discharge to ground or groundwater of substances contained within List I or List II of the Groundwater Directive (80/68/EEC). This will give the Agency wide powers to control discharges and activities so as to control groundwater pollution. Certain activities and discharges which will be covered by the regulations will require prior investigation and requisite monitoring before and after they commence.

*Water Framework Directive*

In February 1997, the European Commission adopted a proposal for a Council Directive establishing a Framework For Community Action in the Field of Water Policy. The proposal takes the combined approach to water pollution control and addresses the problem of diffuse pollution. The fundamental unit for water protection is the "River Basin District". The proposal requires the provision of River Basin Management Plans which, although very similar, are more detailed the LEAPs.

**APPENDIX D: GQA CLASSIFICATION**

The GQA scheme is used to make regular assessments of the quality of rivers to monitor trends over time and to compare rivers in different areas. Four components are being developed for the GQA assessment - general chemistry, nutrients, aesthetics and biology, each providing a discrete 'window' on the quality of the river stretches. The general chemistry component of the GQA is now in use. It is made up of six grades (A to F) defined by standards for dissolved oxygen, BOD and total ammonia. In the GQA chemical quality system A and B are classed as good quality, C and D are fair quality and E and F are poor quality. The remaining three GQA windows are still under development and will be applied when available.

**Table 10: GQA Classification.**

Water quality	Grade	Dissolved Oxygen	Biochemical Oxygen Demand (ATU)	Ammonia
		(% saturation) 10 percentile	(mg/l) 90 percentile	(mgN/l) 90 percentile
<b>GOOD</b>	A	80	2.5	0.25
<b>GOOD</b>	B	70	4	0.6
<b>FAIR</b>	C	60	6	1.3
<b>FAIR</b>	D	50	8	2.5
<b>POOR</b>	E	20	15	9.0
<b>POOR</b>	F	-	-	-



**APPENDIX E: STATEMENT OF INFORMAL CONSULTATION**

During August and September of 1997, Local Authorities and a wide range of other organisations with an interest in the environment were contacted for formal consultation. The other organisations contacted included government departments and statutory bodies, conservation, amenity and other interest groups, industries and other businesses located in the area, landowners and angling organisations. A draft version of Section 4, Issues and Proposals, was sent to the 65 pre consultees. The purpose of this liaison was to:

- Ensure all the major issues had been identified;
- Ensure that the most important objectives and suitable proposals to meet those objectives were included;
- Obtain comments on the appearance and content of the Section.

At the end of the informal consultation period, 19 responses were received, a reply rate of 29%. The breakdown of responses is as follows:

**Table 11. Breakdown of Responses.**

Organisation type	No.	Percentage
Governmental organisations (Central/Local), including National Parks	4	21
Agriculture	2	10.5
Industry	2	10.5
Fishery	3	16
Water Undertakers	2	10.5
Conservation	2	10.5
Other	4	21

**Table 12. Number of Comments Received on Each Issue.**

Response	No.	Response	No.
Water quality issues (Including bathing and coastal waters in general.)	15	Suggested omissions	12
Partnership issues	6	General positive response	5
Conservation and recreation	5	Fish issues	5
Waste issues	4	Biodiversity	4
Format/status of report	4	Air issues	2

Response	No.	Response	No.
Enforcement issues	2	Non specific	2
General negative response	1	Flooding	1
Areas of responsibility	1	Water quantity	1
Release of otters	1	Pollution prevention	1
Costs/resources	1	Impact of asulam	1
Heritage Coast	1		

**APPENDIX F: CONSULTATION LIST**

(A list of all consultees who responded during the informal consultation phase.)

British Steel  
Cleveland Wildlife Trust  
Egton Estates  
English Nature  
Farming and Wildlife Advisory Group  
Global Environmental  
Goathland Fishing Club  
HM Coastguard Eastern Region  
MAFF  
Member, Tees Esk and Coast Area Environment Group  
North East Sea Fisheries Committee  
North York Moors National Park Authority  
Redcar and Cleveland Borough Council  
Tees and Hartlepool Port Authority  
The Inland Waterways Association  
Whitby Town Council  
York and District Salmon and Trout Association  
Yorkshire Water Services (two responses)

**APPENDIX G: GLOSSARY OF TERMS**

Abstraction	Removal of water from surface water or groundwater usually by pumping which, for example, may be used for drinking water, industrial cooling water or agricultural purposes.
Abstraction licence	Licence issued by the Agency under Section 38 of the Water Resources Act 1991 to permit water to be abstracted.
Ammonia	A chemical found in water often as the result of discharge of sewage effluents. High levels of ammonia affect fisheries and abstractions for potable water supply.
AMP (Asset Management Plan)	For the purposes of this document Asset Management Plans can be considered as the means by which the water undertakers (Yorkshire Water Services, Northumbrian Water Ltd and Hartlepoons Water Co.) plan the work required and the capital expenditure necessary, for improvements and maintenance of the water supply, sewage treatment works and sewerage systems. These plans are drawn up through consultations with the Agency and other bodies to cover a five year period. The AMPs have to be agreed by the DETR and OFWAT.
AOD (Above Ordnance Datum)	Equivalent to mean height above sea level.
Aquifer	A layer of underground porous rock which contains water and allows water to flow through it.
AONB	Areas of Outstanding Natural Beauty are designated under the National Parks and Access to the Countryside Act 1949 by the Countryside Commission. Their primary purpose is to conserve the natural beauty of selected landscapes.
Asulam	Asulam is a herbicide used to control bracken.
Bacteria	Single-cell micro-organisms. Aerobic bacteria need oxygen for growth. Anaerobic bacteria grow in an oxygen deficient environment.
Base Flow	Part of a stream's flow made up of groundwater; it sustains the stream during dry periods.



Bioaccumulation	Accumulation of (usually) toxic materials within the tissues of living organisms and not readily excreted by them; thus affording their concentration in food chains.
Biochemical Oxygen Demand	A measure of the amount of oxygen required to break down organic matter present in water.
Biodegradation	The breakdown of material by the action of micro-organisms.
Catchment	The total area of land which contributes surface water to a specified watercourse or water body.
Combined Sewer Overflow (CSO)	An overflow structure which permits a discharge from the sewerage system to controlled waters during storm weather conditions.
Containment Site	Landfill site where the rate of release of leachate into the environment is extremely low. Polluting components in wastes are retained within such landfills for sufficient time to allow biodegradation and attenuation processes to occur, thus preventing the escape of polluting leachates at unacceptable concentrations.
Controlled Waste	Defined by the Environmental Protection Act 1990 section 75. It includes household, industrial and commercial and special waste.
Controlled Waters	Defined by the Water Resources Act 1991, Part III, Section 104. They included groundwaters, inland waters and estuaries.
Cross-Warranting	The Agency and the North Eastern Sea Fisheries Committee operate a scheme to encourage effective and efficient poaching control in coastal waters.
Cumecs	Cubic metres per second.
CWTN	Controlled Waste Transfer Notes.
Dangerous Substances	Substances defined by the European Commission as in need of special control because of their toxicity, bioaccumulation and persistence. The substances are classified as List I or List II according to the Dangerous Substances Directive.

DETR	Department of Environment, Transport and the Regions, replacing the Department of the Environment (DoE).
Diffuse Pollution	Pollution from widespread activities with no one discrete source.
Discharge Consent	A statutory document issued by the Agency under Schedule 10 of the Water Resources Act 1991 to indicate any limits and conditions on the discharge of an effluent to a controlled water.
Disposal Authority	Disposal authorities were established by the Local Government Act 1972 for England and Wales. They consist of the County Councils, in shire counties, and the Borough/District Councils following abolition of the Metropolitan Counties and the Greater London Council, except where the Secretary of State establishes a Statutory Authority.
Dissolved Oxygen	The amount of oxygen dissolved in water. Oxygen is vital for life so this measurement is an important, but highly variable, indicator of the "health" of a water. It is used to classify waters.
Drift Deposits	Term used to include all unconsolidated superficial deposits, eg fluvial, glacial or alluvial, overlying solid rock.
Effective Rainfall	The rain remaining as a run-off after all losses by evaporation, interception and infiltration have been allowed for.
Enmaining	The process which alters the status of a stretch of river from 'non-main' to 'main river'
Environmental Quality Standard (EQS)	The quantity of a substance found in a body of water which should not be exceeded in order to protect a given use of the water body. An EQS is set by the European Community through EC Directives and the Government.
Evapotranspiration	The loss of moisture from the earth's surface by means of direct evaporation together with transpiration from vegetation. Potential evapotranspiration - assumes an unrestricted supply of water to the earth's surface and refers to the theoretical maximum loss of moisture.

	Actual evapotranspiration - is the observed or true loss of moisture.
Fissure Flow	Rapid groundwater flow through an aquifer through the cracks in the rock matrix.
Flood Plain	This includes all land adjacent to a watercourse over which water flows or would flow but for flood defences in times of flood.
Fly Tipping	The unregulated and hence illegal dumping of waste.
Groundwater	Water which is contained in saturated underground strata.
Headwater	Streams close to their sources.
Heritage Coast	Stretches of coast, defined by the Countryside Commission and the Local Planning Authorities. The focus is upon the management requirements of the specified coastal area.
HNDA	High Natural Dispersion Area.
Landfill	The deposit of waste onto and into land that, when properly engineered, pollution or harm to the environment is prevented and, through restoration, to provide land which may be used for another purpose.
Landfill Gas	A by-product from the digestion by anaerobic bacteria of putrescible matter present in waste deposited on landfill sites. The gas is predominantly methane (65%) together with carbon dioxide (35%) and trace concentrations of a range of vapours and gases.
LAWDC	Local Authority Waste Disposal Company: A company set up under provisions of EPA 1990 to dispose of municipal wastes. Usually a joint venture between a local authority and the private sector.
Leachate	Liquid generated within a landfill, and by so doing extracts substances from the deposited waste. If allowed to leave the site it can pollute surface and groundwater.
Leaching	Removal of soluble substances by action of water percolating.

Local Agenda 21	Agenda 21 is a global action plan for the 21st century, produced at the Rio Earth Summit in 1992. Local authorities are charged with producing a Local Agenda 21 Action Plan, to promote and encourage local community action towards a more sustainable way of life for all. The Agency is obliged under the statutory guidance given by the Secretary of State to assist the LA 21 process.
Macroinvertebrate	Animals lacking a backbone which are retained on a 0.5mm sieve.
Main River	Some but not all, watercourses are designated as main river. Main river status of a watercourse must first be approved by MAFF. Statutory (legally binding) maps showing the exact length of main river are held by MAFF in London and the Agency in Regional Offices. The Agency has the power to carry out works to improve drainage or protect land and property against flooding on watercourses designated as main river. The Agency does not have the legal power to spend public funds on drainage or flood protection works on water courses not designated as main river.
Methane	A colourless, odourless and flammable gas, CH <sub>4</sub> , formed during the anaerobic decomposition of putrescible matter. It forms explosive mixture in the range 5 - 15% methane in air.
Microbe Micro-Organism	Small organisms, usually single cells which normally are only visible under a microscope. They include algae, bacteria and fungi.
Mld	Megalitres per day.
µg/l	Microgrammes per litre.
mg/l	Milligrams per litre.
National Nature Reserve	An area of land designated by English Nature under Section 35 of the Wildlife and Countryside Act 1981. They are managed by or on behalf of English Nature specifically for wildlife conservation purposes.
National Park	National Parks were designated under the National Parks and Access to the Countryside Act 1949. The North York

	Moors National Park covers much of this LEAP area. The Park Authority now has the same planning powers and responsibilities as the Local authorities.
Non-main river	Stretches of watercourse not classed as 'main river'.
Objective 5b	Objective 5b European Union Structural Fund monies are awarded to disadvantaged rural areas and funding must be of economic benefit such as the creation of wealth and jobs.
OFWAT	Office of Water Services
PM10	Particulate matter below 10 microns diameter.
Potable Water	Water of suitable quality for drinking.
Prescribed Flow Condition	A condition attached to an abstraction licence such that if the river flow is less than a preset flow measurement, abstraction must cease until flows are restored.
Public Surface Water Sewer	Sewers which transmit uncontaminated surface water run-off to a watercourse. The sewerage undertakers are responsible for the maintenance and control of these sewers.
Q95	The flow of a river (water level) which is exceeded for 95% of the time.
Ramsar Sites	Internationally important wetland sites adopted from the Convention of Wetlands of International Importance especially as water-fowl habitats, 1971, and ratified by the UK government in 1976.
Regional Telemetry System (RTS)	The Regional Telemetry System allows up-to-the-minute information to be gathered by computers at an Agency office from outstations within the area. These outstations monitor river water level, flow and quality.
Return Period	Refers to the return period of a flood. Flood events are described in terms of the frequency at which, on average a certain severity of flood is exceeded. This frequency is usually expressed as a return period in years, e.g. 1 in 50 years, or 2%.



Riparian Owner	A person/organisation with property rights on a river bank.
River Corridor	Land which has visual, physical or ecological links to a watercourse and which is dependent on the quality or level of the water within the channel.
River Quality Objective (RQO)	The level of water quality that a river should achieve in order to be suitable for its agreed uses.
Section 30	Permission to move fish, granted by the Agency under the Salmon and Freshwater Fisheries Act 1975.
Section 54A	Section 54A of the Town and Country Planning Act 1990, as amended by the Planning and Compensation Act 1991, indicates the government's commitment to a 'plan-led' system. Where an adopted or approved (or in certain cases an emerging) plan contains relevant policies, section 54A requires that a planning application or an appeal shall be determined in accordance with the plan 'unless material considerations indicate otherwise'.
Sewage Sludge	Sludge resulting from the treatment of raw sewage. It typically contains 70-90% water, prior to dewatering.
Silage	A winter feed for cattle. Silage is produced in the summer by bacterial action on freshly cut grass and is stored in a clamp or silo, or is wrapped or bagged in plastic. Silage production results in the formation of a highly polluting effluent.
Site of Special Scientific Interest	A site designated under the Wildlife and Countryside Act 1981 by English Nature or the Countryside Council for Wales, being of national importance for its wildlife, geological or geomorphological features.
Slurry	Animal waste in liquid form, including contaminated yard water and may contain bedding material. Slurry is usually collected and stored in tanks or lagoons to be spread on farm land at a later date.
Special Protection Areas (SPA)	Special Protection Areas are internationally important sites designated under the EC Wild Birds Directive.'
Springs	Natural emergence of groundwater at the ground surface.

Strata	Layers of rock, including unconsolidated materials such as sands and gravel.
Sustainable development	One definition is: development which is capable of being maintained at a steady level without exhausting natural resources or causing ecological damage.
TCMD	Thousand cubic metres per day, equivalent to Megalitres per day (Mld).
Trade Effluent	Effluent derived from a commercial process/premises.
UWWTD	Urban Waste Water Treatment Directive
Waste	Defined in the Environmental Protection Act 1990 Part 2 Section 75; includes household, commercial and industrial and Special waste.
Water Quality Objectives	Water Quality objectives set by the Secretary of State for the Environment in relation to controlled waters. It is anticipated that these objectives will become statutory objectives in the near future.

**APPENDIX H: ABBREVIATIONS**

AMP	Asset Management Plan
ALARA	As Low As Reasonably Achievable
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
BATNEEC	Best Available Technique Not Entailing Excessive Costs
BPEO	Best Practicable Environmental Option
BTMA	Best Technical Means Available
CSO	Combined Sewer Overflow
CWTN	Controlled Waste Transfer Notes
DOC	Duty of Care
DETR	Department of Environment, Transport and the Regions
DoE	Department of the Environment
DoT	Department of Transport
DWF	Dry Weather Flow
EPA90	Environmental Protection Act 1990
EPAQS	Expert Panel on Air Quality Strategy
FWAG	Farming and Wildlife Advisory Group
GQA	General Quality Assessment
HNDA	High Natural Dispersion Area
INCA	Industry and Nature Conservation Association
IPPC	Integrated Pollution Prevention and Control
IPC	Integrated Pollution Control
LAWDC	Local Authority Waste Disposal Company
LEAP	Local Environment Agency Plan
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
NWC	National Water Council
NWL	Northumbrian Water Ltd
NYCC	North Yorkshire County Council
NYMNP	North York Moors National Park Authority
PM10	Particulate matter below 10 $\mu$ diameter
PPG	Planning and Policy Guidance
RPG	Regional Planning Guidance
RSA93	Radioactive Substances Act 1993
RQO	River Quality Objective
RTS	Regional Telemetry System
SPA	Special Protection Areas
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
TDC	Teesside Development Corporation
THPA	Tees and Hartlepool Port Authority
UWWTD	Urban Waste Water Treatment Directive
VOC	Volatile Organic Compounds
WDA	Waste Disposal Authority
WRA	Waste Regulation Authority
WRA91	Water Resources Act 1991
YWS	Yorkshire Water Services Plc

## MANAGEMENT AND CONTACTS:

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

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

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

### ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

**0645 333 111**

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

### ENVIRONMENT AGENCY EMERGENCY HOTLINE

**0800 80 70 60**



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