EA - North East LEAPs Box 2

local environment agency plan

CHEVIOT AND EAST NORTHUMBERLAND

CONSULTATION REPORT

JULY 1997

ENVIRONMENT AGENCY

YOUR VIEWS

Welcome to the Consultation Report for the Cheviot and East Northumberland area which is the 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 Consultation Report in general?
- Have you any other comments?

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

Environment Planner
The Environment Agency
Northumbria Area
Tyneside House
Newcastle Business Park
Newcastle Upon Tyne
NE4 7AR

All comments must be received by 31 October 1997

Further copies of the document can be obtained from the above address.

All comments received will be considered in preparing the next phase, the Action Plan. The Action Plan will build upon Section 1 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

How to use this Consultation Report

The publication of this Consultation Report is an important stage in the Environment Agency's local planning process.

The aim of the process is to identify, prioritise and cost environmentally beneficial actions, on which the Agency and others will work together to deliver within the Cheviot and East Northumberland area.

The Consultation Report provides a focus for the discussion of environmental issues with all interested parties.

Your views are important - we would like to hear your opinions - even if it is to say that you think a particular issue is important or that you support the plan and its objectives.

To make this report easier to use we have divided it into two main parts:

Part 1 identifies issues facing the local environment, and makes proposals for action to address those issues. We would most value your comments on this section of the report.

Part 2 provides the background information to support Part 1. It describes the Cheviot and East Northumberland area, identifies uses and activities which are prevalent within the area and seeks to measure the environmental quality of the area against identified standards (where available).

We look forward to your involvement.

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Draft Vision for the Cheviot and East Northumberland Area

Over 200,000 people currently live and work in the Cheviot and East Northumberland LEAP area. We must work together to protect and improve the areas' environment whilst allowing its sustainable use. We must ensure that future generations can appreciate living and working in the area and enjoy its landscape and wildlife.

Our vision is:

"A better environment in the Cheviot and East Northumberland area for present and future generations"

To do this we will:

- work with others to protect and improve the environment when development takes place
- assist local authorities to protect and improve local air quality
- protect and improve water quality in river and coastal waters
- protect groundwater from the risk of pollution
- work with others to minimise the effect of abandoned mines on the environment
- manage water resources to achieve a balance between the needs of water users and those of the environment
- work in partnership with others to ensure that any increase in surface water abstraction in the River Till does not lead to environmental damage
- work closely with local authorities and others to secure the remediation of contaminated land sites in the area
- promote cooperation within the waste management industry to reduce waste
- ensure that exempt waste management activities do not cause pollution of the environment
- reduce illegal tipping through education of businesses, surveillance of offenders and liaison with local authorities
- promote best practice in industry relating to pollution prevention and waste minimisation
- work with farmers, foresters and their advisers to minimise the risk of pollution
- ensure co-operation between all Government agencies in the area to ensure efficient use of resources
- protect and enhance the coast in partnership with others
- reduce the risk and provide timely warning systems for people and property against flooding from rivers and sea
- work with others to maintain and enhance the diversity of river and wetland habitats and their wildlife
- maintain, improve and develop freshwater fisheries
- promote the use of water and land associated with water for recreation
- generate environmental awareness in young people and understanding of how they can help to improve the environment for future generations

Part 1

Part 1 introduces the Environment Agency, describes the Cheviot and East Northumberland area, identifies a number of issues facing the local environment, and makes proposals for action to address those issues.

1 Introduction

Welcome to the Consultation Report of the Local Environment Agency Plan (LEAP) for the Cheviot and East Northumberland area. Similar reports have been published for both the Wear the Tyne areas. These are available from the Agency at the address shown on the inside front cover of this report.

The boundaries used for the LEAPs follow the river catchment boundaries, therefore the Cheviot and East Northumberland LEAP covers the catchments of the Rivers Tweed (English section only), Aln, Coquet, Wansbeck, and Blyth, their tributaries and the northern coastal streams; the Wear LEAP covers the catchment of the River Wear and its tributaries; the Tyne LEAP covers the catchment of the River Tyne and its tributaries (see Map 1).

1.1 The Environment Agency

The Environment Agency for England and Wales was established in April 1996 when the Environment Act 1995 brought together the National Rivers Authority, Her Majesty's Inspectorate of Pollution, the Waste Regulation Authorities and several units of the Department of the Environment. The Agency is a powerful environmental regulator and provides a comprehensive approach to the protection and management of the environment by combining the regulation of activities that can affect the quality of land, air and water. Our vision is:

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

"We will:

- protect and improve the environment as a whole by effective regulation, by our own actions and by working with and influencing others;
- operate openly and consult widely;
- value our employees;
- be efficient and business-like in everything we do."

Our aims are:

- to achieve significant and continuous improvement in the quality of air, land and water, actively encouraging the conservation of natural resources, flora and fauna;
- to maximise the benefits of integrated pollution control and integrated river basin management;
- to reduce the risk and provide 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 re-cycling and to improve standards of service;
- to manage water resources to achieve the 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;
- to set priorities and propose solutions that do not impose excessive costs on society.

We cannot achieve our main aims alone or solely by the use of our statutory powers. We also need effective liaison with local government, industry, conservation groups, the farming community, landowners and the general public.

We also take into account a number of umbrella duties which sit above existing legislation. The areas of conservation, cost and benefit, rural areas and pollution control are considered when carrying out all of our work.

1.2 The Local Environment Agency Planning Process

We must deliver our aims at a local level. We are therefore publishing Local Environment Agency Plans (LEAPs) to draw together various aspects of environmental management and planning at a local level. The plans are part of an ongoing dialogue between ourselves and other organisations involved in the protection and management of the environment. We will encourage the continuation of this dialogue.

The aim of the LEAP process is to identify, prioritise and cost environmentally beneficial actions which the Agency and others will work together to deliver within the Cheviot and East Northumberland area. These will be brought together in an ***Action Plan*** *for the next five years.*

The LEAP process involves several stages:

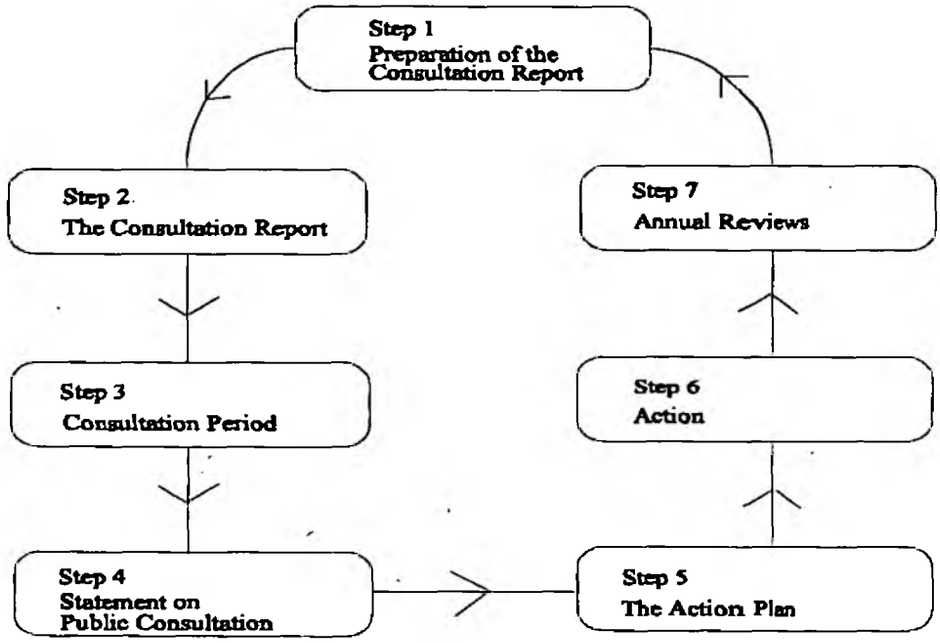


Figure 1 Diagram of the LEAP Process

Preparation of the Consultation Report

This Consultation Report has been produced by a team of Agency staff who work in the Cheviot and East Northumberland area. In order to ensure a wide and balanced approach we have also involved Area Environment Group (AEG) members and consulted some of our key partners prior to publication.

The AEG is our local advisory group with members drawn from a wide range of community interests. They are:

Mr D G H Stewart	Northumberland Wildlife Trust
Mr I E Brown	Farmer
Mr D Stafford	Retail Manager and Angler
Cllr K Manton	Durham County Council
Cllr I C F Swithenbank	Northumberland County Council
Mr M Bird	North East Chamber of Commerce
Dr W Riddell	Chirex
Mr J B Aitchison	Alcan Smelting and Power
Mr J Graham	Northumbrian Water Limited
Mr G A Hornsby	Waste and Minerals Consultant
Mr G Gill	Forest Manager
Mr P Torday	Company Director/Tyne Fishery Riparian Owners and Occupiers Association
Prof P R Evans	Professor of Zoology, Durham University
Ms D Dowen	Environmental Lawyer
Mr H Shipley	National Land Reclamation Panel (Town Planner)
Mr I J Rutherford	Environmental Health Officer
Miss V A Brown	Coquet Shorebase Trust/Chair of Northern Region of British Canoe Union

We have also consulted some of our key partners prior to the publication of this report regarding their views on the issues which affect their particular area. The partners were:

Alnwick District Council
Berwick upon Tweed Borough Council
Blyth Valley Borough Council
Castle Morpeth Borough Council
City of Newcastle upon Tyne Council
Countryside Commission
English Heritage
English Nature
Forestry Authority
Forest Enterprise
Government Office for the North East
Ministry of Agriculture, Fisheries and Food
North Tyneside Metropolitan Borough Council
Northumberland County Council
Northumberland National Park
Wansbeck District Council

The Consultation Report

This Consultation Report gives you the opportunity to comment on environmental problems and/or the work of the Agency. It:

- outlines issues where the Environment Agency and others need to take action to address problems in the environment;
- describes the environmental resources of the area;
- explains how these resources are affected by various uses, activities or pressures.

Consultees may wish to:

- raise additional issues not identified in the plan;
- comment on the issues and options identified in the plan;
- suggest alternative options for resolving identified issues.

We recognise that many of the issues and proposals for action identified by the Consultation Report will involve a number of organisations or individuals. Your views will be crucial to the preparation of the Action Plan.

Consultation Period

Anyone wishing to make comments on the LEAPs will be able to do so for a period of approximately three months. Comment should be made in writing by 31 October 1997 to the address shown on the inside front cover.

Statement on Public Consultation

At the end of the consultation period we will publish a statement which will give the results of the consultation process. The results will be taken into account when the Action Plan is produced.

The Action Plan

The Action Plan will be produced, by March 1998, following consultation and will have regard to the comments received. Once produced, the plan will form a basis for future actions within the area for the next five years and will be a public document. It will detail the nature of actions required, take into account costs and benefits, identify timescales and partner organisations.

Action

Agreed actions will be incorporated into the annual business plans of the Agency and others proactive in environmental enforcement and protection.

Annual Reviews

Each year we will review the progress that has been made with the actions identified in the Action Plan and publish a brief review. We will also report on any major new issues which may affect the way we manage the environment in this area. Within five years of publishing the Action Plan we will undertake a major review of the progress made.

The review document will comprise the following information:

- A comparison of actual progress against planned progress.
- Identification of additional actions to maintain progress in the light of changes in the area.
- Consideration of the need to update the LEAP.

Local Environment Agency Plans and Catchment Management Plans

Over the last few years the National Rivers Authority, now part of the Environment Agency, produced Catchment Management Plans for the Wear, Tyne, Blyth, Wansbeck, Coquet, Aln, Till and the Northumbria Area Coast. The LEAPs will build on the success of the Catchment Management Plans and will integrate all the Agency's functions. The LEAPs will supersede the Catchment Management Plans.

1.3 Protection through Partnership

The Environment Agency is limited in both its resources and powers and cannot work alone to protect and enhance the environment. Many other bodies and organisations also have responsibilities to the environment and a role to play in improving it. Partnerships, in the form of pooled resources and expertise, are often key to successfully addressing major challenges.

Collaboration can bring about environmental benefits, provide greater flexibility and release funding which would not otherwise be available. It can also bring in new skills to the Agency through working with external organisations, and may provide increased educational and promotional opportunities.

Three areas requiring cooperation and clear communication between the Agency and others are land use planning, Local Agenda 21, and partnership projects.

Land Use Planning

Development on previously undeveloped land, or the redevelopment of sites, whether for industrial or domestic purposes, have implications for the environment.

The majority of developments are controlled through Development Plans, published by local planning authorities under Town and Country Planning legislation. These strategic plans take the form of County Structure Plans, District Wide Local Plans and Unitary Development Plans, which set the context for development in land use, planning and transportation. They identify areas for future residential, commercial and industrial development, and set out the policies against which planning authorities consider development proposals and land uses. The Agency is a statutory consultee for these plans. Further details of our current and proposed involvement in land use planning matters are given in Issue 1 in Part 1 and Section 5.1 in Part 2.

Local Agenda 21

Sustainable development was given added impetus when the UK and other governments signed up to Agenda 21 at the Earth Summit in Rio in 1992. This is an environmental action plan for the next century, which recognises the central role of local authorities and the value of partnerships and the local community in achieving sustainable development.

Since the Earth Summit, local authorities have been charged with producing a Local Agenda 21 plan for their area. This document should encourage wider access to environmental information, greater community participation in decision-making and the adoption of sustainable development principles.

Local Authorities, industry, pressure/community groups and the Agency have established various Local Agenda 21 initiatives.

In the Cheviot and East Northumberland LEAP area initiatives are underway in Newcastle City, North Tyneside and Northumberland. For example Northumberland County Council has set up several Working Groups. They are:

- Natural Environment;
- Transport;
- Pollution and Waste;
- Energy;
- Quality of Life.

The Agency supports these initiatives listed above and a regional initiative to share best practice between local authorities. We will also play a key role in providing information/data and expertise where required and where resources allow.

Partnership Projects

Many organisations influence the environment and therefore need to be partners in managing it. Lack of adequate funding for projects is often a problem, and can cause difficulties with long term initiatives. There are a number of routes to gain funding for partnership projects either through the European Structural Funds or other National initiatives (such as the Lottery, Government Challenge Funds and Rural Action).

The objective of the EU Structural Funds is to address socio-economic differences within the European Community. The funds are administered by the local Government Office and MAFF through six 'Objectives' or a number of 'Community Initiatives', some of which are available only in certain areas of the UK. In the Cheviot and East Northumberland area funds which could be used for environmental improvements include:

- Objective 2 funding - for industrial areas in decline.
- Objective 5b funding - for disadvantaged rural areas.

The 'Community Initiatives' are targeted at different social groups and communities. These include:

- RECHAR - for regeneration of areas affected by closure of the coal mining industry;
- KONVER - for areas heavily dependant on the defence sector;
- PESCA - for areas affected by the decline of the fishing industry.

Most of the EU funds are applicable to certain areas which are defined by the appropriate administering body (further details can be obtained from the local Government Office).

The Agency is currently involved with a number of partnership initiatives using indirect funding. These currently include:

- Project Tyneside (waste minimisation - see Issue 13).
- Northumbria Waste Minimisation Club (waste minimisation - see Issue 13).
- The Newcastle Initiative Environmental Services Project (waste minimisation - see Issue 13).
- Easington Waste Minimisation Initiative (waste minimisation - see Wear LEAP).
- 'Turning the Tide' (regeneration of Durham Coast - Millennium Fund - see Wear LEAP).
- The Northumbrian RIVERS Project (application made to assist economic development in rural areas - see Issue 21).

There is potential for the development of other joint initiatives. The Agency welcomes and encourages the formation of partnerships for projects with environmental benefits. The Issues shown in Section 3 highlight topics where we believe action is needed.

2 The Cheviot and East Northumberland LEAP Area

The Cheviot and East Northumberland LEAP covers an area of approximately 2,863km² extending from the Scottish Border in the north to the northern boundary of the River Tyne catchment in the south. The area is flanked by the Cheviots to the west and by the North Sea to the east. The Cheviot and East Northumberland area is one of the most sparsely populated in England and Wales (see Map 1).

The high landscape quality of the LEAP area has been recognised by the designation of the Northumberland National Park and Northumberland Coast Areas of Outstanding Natural Beauty. Extensive areas, particularly the coast and upland mires, are also of recognised national and international importance for nature conservation.

The character of much of the landscape has resulted from agricultural practices. These activities have led to a mix of upland moor, forest, arable and pasture land, used primarily for stock rearing or arable cropping. The future management of the rural landscape is largely dependent on the continuation of agriculture.

Business in the LEAP area is focused mainly in the south east as well as around the main population centres of Alnwick and Berwick upon Tweed. Urban and industrial influences, with past coal mining activities, are important in characterising the landscape and environmental quality of the south east of the area. Industry has, however, changed and declined in recent years from heavy coal mining-related industries to lighter industries. The principal heavy industries of the area are Blyth Power Station, Alcan Power Station and Alcan Aluminium Smelter. Opencast coal mining now dominates large tracts of land to the south and east of the LEAP area. A new wind farm to provide electricity has been developed at North Blyth.

Within the last fifty years, the population of the area has steadily increased to an estimated 205,000 (1991 census), a trend which is expected to continue. There is an uneven distribution of this population with over half living in the urbanised south east.

The LEAP area has a fine heritage of historic buildings, archaeological sites and monuments and includes features of international importance. This heritage makes a significant contribution to the quality of the environment and provides an important educational and tourism resource.

The Northumberland coastline consists largely of sandy bays separated by rocky headlands, which are backed by dunes or cliffs. Holy Island is connected to the mainland just south of Berwick upon Tweed by a causeway which runs over a large expanse of sand/mud flat. The Farne Islands, south of Holy Island, are 5-10km off the coast. Both groups of islands are internationally important for their wildlife value and have a number of designations affording them protection.

There are a number of ports and marinas along the coast, at Berwick, Seahouses, Craster, Amble, and Blyth, which generate a large volume of sea-faring traffic including fishing vessels, cargo ships and recreational private craft. The trade via these ports is important to the area's economy.

The pristine condition of most of the Cheviot and East Northumberland LEAP area makes it an attractive area in which to live as well as providing great appeal to visitors. It is important that we not only protect our natural resources, but make environmental improvements where there are specific problems.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 1
Environment Agency
LEAP Area
KEY
Area Boundary
LEAP Area Boundary
Watercourse
District Boundary
Built up area
N
Berwick upon Tweed
Holy Island
Farne Islands
BERWICK-UPON TWEED BOROUGH
Seahouses
Wooler
Alnwick
ALNWICK DISTRICT
Coquet Island
Rothbury
Amble
North Sea
Lynemouth
Ashington
Morpeth
WANSBECK DISTRICT
CASTLE MORPETH BOROUGH
Blyth
BLYTH VALLEY BORODUGH
Ponteland
TYNEDALE DISTRICT
TYNE
NORTH TYNESIDE DISTRICT
Newcastle-upon-Tyne
WEAR
0
20km

3 Issues and Proposals for Action

An aim of this Consultation Report is to highlight issues and propose actions to address them. The Agency has identified issues that require consideration by all those interested in the future of the Cheviot and East Northumberland area by:

- comparing the current state of the local environment with national and regional targets;
- informal consultation with selected organisations;
- considering pollution incidents and complaints;
- using the local knowledge of Agency staff.

The objectives and proposals for action are the initial views of Agency staff, Area Environment Group members, and those organisations we have involved in pre-consultation. They are therefore not policy statements.

This part of the plan is the one where your comments are most valued. Please let us know whether you think the issues identified are the right ones, what you think of the proposals and whether we should examine any other options.

Each issue will be presented in the following format:

Issue	What is the perceived problem.
Proposals	We have set out, in tabular form, proposals to address the issue and the advantage or reason for the proposal.
Who's involved	An indication of the groups and organisations who will need to be involved in resolving the issue.
Background	Why we believe there is an issue to be addressed and what effect it is having, or could have, on the local environment.

NB:

- Detailed Action Plans, outlining costs and timetables, will be established only after the consultation phase.
- Each issue should not be viewed in isolation. There are many links between them. We have grouped some issues to reflect the need to work closely with other organisations or sectors of society.
- All actions of the Agency must take into account a number of umbrella duties which sit above existing legislation. The areas of conservation, cost and benefit, rural areas and pollution control are considered when carrying out all our work.

Issue 1 Future Development - Protecting and Enhancing the Environment

There is a continuing need for new residential, business and industrial premises within the Cheviot and East Northumberland area. New development can affect the environment. This issue relates to how those involved in planning and carrying out developments can minimise the negative effects and maximise the positive effects these developments can have on the environment.

Objective

- To work with others to protect and enhance the environment when development takes place.

No	Proposals/Action Needed	Reasons/Advantages
a	Take a proactive approach to development issues and work closely with inward investment agencies, major building firms, local planning authorities to promote and share best practice.	By working closely with local authorities and potential developers before planning applications are made, we can ensure that the best available techniques to protect and enhance the environment are incorporated at the planning stages of a development.
b	Encourage the local planning authorities to include policies in their development plans, including mineral and waste plans, which protect and enhance the environment.	Clear, concise policies in development plans will ensure developers take account of environmental issues at the planning stage.
c	Comment on individual development applications as they come into the Agency from local planning authorities and assess the take-up of comments made.	Ensures that the Agency's comments on individual planning applications are taken account of.
d	Assist in developing demonstration site/s of best practice in partnership with local authorities and developers. (Such a site is Earth Balance - see below).	Local demonstration sites would assist in sharing best practice and promoting sustainable development techniques such as 'source control'. However, funding such demonstration sites is difficult and requires all those involved to work in partnership (see Section 1.3).

Who's Involved

Local Planning Authorities, Government Office for the North East, inward investment agencies, major building firms, Northumberland National Park, Environment Agency, Northumbrian Water Limited.

Background

The Government stated that approximately 15,000 houses need to be built in the Cheviot and East Northumberland area before 2006. Most of these developments will be controlled through development plans, which are published by local planning authorities under Town and Country Planning legislation. Individual development proposals are considered in relation to the approved development plan. The final decision on planning matters rests with the planning authorities. However, if the development involves water abstraction; impoundment or a discharge; work on or near a watercourse; the movement or disposal of waste; the undertaking of an industrial process; the introduction of fish to a water course, then appropriate consents or licences may be required from the Agency.

The watercourse system in particular is susceptible to changes in drainage patterns and diffuse pollution from development. Impermeable surfaces, such as car parks and roads, and modern drainage systems have significant consequences on the environment, principally:

- the removal of the natural filtering effect of vegetation and soil layers leads to reduced water quality;
- the increased rate of run-off leads to higher, more frequent flood flows in downstream areas.

There are several techniques and approaches that can help minimise the effect of development on the environment. These include techniques that infiltrate, filtrate and detain run-off to minimise potential flood risk and maintain, or improve water quality. These techniques, collectively termed 'source control' or 'best management practice' (BMP), have the potential to make a major contribution to balancing development and environmental protection within the wider context of sustainable growth.

Development can have positive effects on the environment including:

- redevelopment of previously used sites (sometimes called brownfield sites) can ensure that any contamination is dealt with safely;
- sympathetic landscaping on sites can increase native habitats for the benefit of wildlife;
- careful planning of any developments can improve the opportunities for leisure and recreation for local communities.

Local air quality can also be affected by development, particularly by exhaust emissions from car (see Issue 2).

The Agency is currently involved with a project on a 200 acre site at West Sleekburn run by Earth Balance Trust. The aims of the trust are to demonstrate the practical application of sustainability in terms of energy and food production, waste disposal, building design and organisational systems. It will be a demonstration project, but one that is actually functioning and producing.

It will be an important educational resource consisting of:

- composting waste to supply local houses and on-site farm;
- sewage treatment using reed bed system;
- water power generation;
- renewable energy system using wind turbine, hydro turbine and a gasification plant;
- organic farming.

Further details on topics related to this issues can be found in Section 5.1 of Part 2.

Issue 2 Air Quality

Recent legislation and Government policy guidance reflects the increasing concern that is felt regarding the quality of the air that we breathe and the pollutants that we release into it. Local Authorities (LAs) have been given the responsibility of introducing Local Air Quality Management. The Agency only regulates discharges to air from larger industrial processes (see Section 5.3).

Objectives

- To assist local authorities in the development and implementation of Local Air Quality Management (LAQM).

No	Proposals/Action Needed	Reasons/Advantages
a	Actively assist LAs with Local Air Quality Management (LAQM). In particular: • provide information on air emissions from Part A regulated sites; • actively encourage LAs to cooperate on LAQM; • investigate the possibility of using Agency air quality modelling to assist LAs; • once the pilot areas have been set up, assist in sharing best practice with other LAs.	LAQM should, in theory, provide the local framework for action. Cooperation between the Agency and the LAs will ensure all sources of pollution to air will be taken into account. Cooperation between the Agency and LAs will ensure that the cost of setting up LAQM is minimised.
b	To develop and apply, where needed, biological techniques to effectively monitor air pollution from specific sites.	Monitoring of sites, both before and after implementation of improvement programmes, will indicate if improvement programmes have had the desired effect.

Who's Involved

Local authorities, Environment Agency, industry.

Background

The Government's approach to air quality management has centred around two themes:

- Firstly the development of a national strategy that will set overall objectives for the levels of specified pollutants, based on cost and benefit.

- Secondly, where any of the objectives prescribed are not being achieved or are not likely to be achieved by the year 2005 within any part of a local authority's area, the authority concerned has to designate part of its area as an Air Quality Management Area (AQMA). A plan covering the designated area then has to be prepared setting out how the authority intends to exercise its powers in relation to the designated area to achieve the prescribed standards or objectives. Some local authority areas have been set up as pilots to review the DoE Guidance, and to consider and anticipate problems in achieving the objectives; one such area is the Tyne and Wear Authorities' area. The Agency is a statutory consultee on AQMA; however, in the above table we propose taking a more active role in the management of air quality.

Taken together, the above represent a major step towards actually managing local air quality rather than simply monitoring and regulating the release of atmospheric pollutants.

Within the Cheviot and East Northumberland area there are:

- several road transport corridors and town centres which may be the biggest sources of air pollutants;

- several industrial processes which require consent from the Agency to release into air. These sites are shown on Map 7 in Part 2;

- many less complex industries regulated as Part B process by Local Authorities.

These sources of pollutants, combined with those outside the LEAP area and prevailing weather conditions, could combine at certain times to create poor air quality in certain places. Further details on this topic can be found in Section 6.3 of Part 2.

Issue 3 River Water Quality

Poor water quality can adversely affect river use, particularly water abstraction, fisheries, recreation and natural wildlife and habitats. The quality of surface waters in the Cheviot and East Northumberland area is currently evaluated in a number of ways against a range of statutory and non-statutory standards. Specific details are given in Section 6.1 and Appendix 7.2. Some stretches of river in the plan area currently fail to meet these targets. Actions needed to improve stretches significantly failing to meet the targets are listed below along with the reason for the failure. Pollution risks are also highlighted.

Objective

- To protect and improve water quality in the Cheviot and East Northumberland area.

No	Proposals/Action needed	Reasons/Advantages
a	• Northumbrian Water Ltd (NWL) to upgrade Haggerston sewerage Treatment Works (STW). [No funds allowed for in NWL's Asset Management Plan (AMP2) - see below for details].	A stretch of South Low fails to achieve its Rivers Ecosystem (RE) target (see Section 6.1 for details of RE).
b	• Continue liaison with developers at Haggerston Caravan Park on North Low.	New sewage treatment works is proposed.
c	• NWL to upgrade Pegswood STW. [No funds allowed for in AMP2, negotiations with NWL to be arranged].	A stretch of Bothal Burn fails to reach its RE target.
d	• Upgrade of Northgate Hospital STW. [Negotiations with discharger to be arranged].	A stretch of Cotting Burn fails to reach its RE target.
e	• NWL to upgrade Belford STW and improve Combined Sewer Overflows (CSOs). [No funds for STW allowed for in AMP2]	A stretch of Belford Burn fails to reach its RE target.
f	• Upgrade Police HQ STW [Negotiations with discharger to be arranged]. • Undertake farm campaign (see Issue 14).	A stretch of Small Burn fails to reach its RE target.
g	• Further investigations of the effects of low flows on water quality of these stretches and review 1997 data.	Stretches of the River Pont, Coldcoats Burn and Black Heddon Burn fail to reach their RE targets.
h	• NWL to continue monitoring for pesticides of raw water at intakes at Warkworth Water Treatment Works (WTW) on River Coquet and at Mitford WTW on River Wansbeck. • Undertake farm pollution prevention campaign as problem needs to be addressed with farmers, National Farmers Union (NFU) and others (see Issue 14).	There have been occasional high pesticide levels in raw water at intakes at Warkworth WTW on River Coquet and at Mitford WTW on River Wansbeck.
i	• Continue monitoring of discharge from Harecrag Quarry, Alnwick and recommend improvements to site owners. • Investigate the introduction of a reed bed system to reduce ammonia levels.	High ammonia levels have been found in a tributary of the Hampeth Burn.
j	• Continue the biological survey looking at CSOs, Surface Water Overflows and trade impacts on Seaton Burn. An assessment of impact is to be carried out and necessary improvements enforced.	Seaton Burn has poor water quality.

No	Proposals/Action needed	Reasons/Advantages
k	• Investigate and define procedures for first time sewage schemes together with owners of houses/sites where watercourses are affected by septic tank discharges. • Biological and chemical monitoring to assess the impact and benefit from any improvement works.	Some rivers and streams in the LEAP area can be affected by discharges from septic tanks.
l	• Agency to evaluate and acts on River Coquet Industrial Risk Assessment. • Agency to complete, evaluate and act on Farm Risk Assessment report.	• River Coquet Industrial Risk Assessment has recently been completed which identifies potential risks and effects on river intake at Warkworth. • Farm risk assessments are currently being carried out to identify potential risks to intakes at Mitford and Warkworth.
m	• Monitor rivers and streams which may be affected by caravan site sewage treatment problems. • Negotiate remediation measures with owners, where necessary.	The large number of tourists coming to the area's caravan sites can lead to overloading of sewage treatment works.
n	• Monitor surface water outfalls and cross connections, rank the problems in terms of severity. • Address the problem outfalls with NWL.	There is a general problem of surface water outfall contamination over the whole area.
o	• Continue to establish and maintain strong links with the Scottish Environmental Protection Agency (SEPA) (see Issue 15).	Pollution and pollution prevention issues on the River Tweed require close cooperation between the Agency and its Scottish counterpart, SEPA.
p	• Continue monitoring the effluent discharged to the river from a discharge at Stobswood Opencast Coal Site (OCCS). • Discuss, with operators, trial methods which will reduce the iron levels.	There is a high iron content of D4 discharge at Stobswood OCCS on River Lyne at Ulgham.

Who's Involved

Environment Agency, Northumbrian Water Limited, Office of Water Services, industry, farmers, landowners, SEPA.

Background

Some of the water quality problems shown above are due to the effects of discharges from Northumbrian Water Limited (NWL) sewage treatment works or combined sewerage overflows to the watercourse. Any work by NWL for the improvement and maintenance of the water supply, sewage treatment works and sewerage systems must be planned for in their Asset Management Plan (AMP). These plans are drawn up, through consultations with the Agency and other bodies, to cover a ten year period. The plans have to be agreed by the Department of the Environment (DoE) and the Office of Water Services (OFWAT). Any expenditure in the years 1995 to 2005 for improvements to sewage works or infrastructure must already be planned for in the current AMP (referred to as AMP2). We have indicated in the table above whether the action needed to improve the water quality is planned for in AMP2 or must wait to be considered in the review of the Asset Management Plan (AMP3) which is currently being negotiated.

Over many decades lack of investment in sewerage has resulted in some of the systems becoming severely overloaded. This results in combined sewer overflows (CSOs), a sewer overflow structure which permits a discharge from the sewerage system during wet weather conditions, operating in virtually dry weather, when they were originally designed to operate only in periods of heavy rainfall. The rivers downstream of the CSOs can be polluted as a result. In addition to unsatisfactory overflows, some of the receiving sewage treatment works (STW) require improvement to meet the need of the rivers, these are highlighted in the table above.

There are a few small rural communities which have inadequate sewage treatment facilities causing localised pollution problems at Brunton, Tritlington, Chathill, Ellingham, and Ford Village. The Agency currently monitors watercourses in vulnerable locations, but further investigation and possible improvement works to overcome the problems are required.

Further details on this topic can be found in Sections 5.7, 6.1 of Part 2 and Appendix 7.2.

Issue 4 Estuary and Coastal Water Quality

Poor estuarine and coastal water quality may have a detrimental effect on other uses of the water environment, particularly fisheries, recreation, wildlife and natural habitats. The quality of the estuaries and the coastal strip of the Cheviot and East Northumberland area is currently evaluated in a number of ways against a range of statutory and non-statutory standards. Specific details of these are given in Section 6.1 and Appendix 7.2 of this report. Some stretches of estuary, beaches or sites currently fail to meet these targets. The actions needed to address these failures are listed below along with the reason for the failure.

Objective

- To protect and improve the water quality of the estuaries and coastal strip of the Cheviot and East Northumberland area.

No	Proposals/Action needed	Reasons/Advantages
a	• Northumbrian Water Ltd (NWL) to provide secondary treatment at Cambois, Amble and Newbiggin sea outfalls by 2001. [Funded under AMP2] • Agency to ensure that requirements of Urban Waste Water Treatment Directive (UWWTD) are met.	Under the Urban Waste Water Treatment Directive (UWWTD), Cambois, Amble and Newbiggin sea outfalls must have secondary treatment in place by 2001, unless the discharges in a High Natural Dispersion Area (HNDA) are having no adverse effect on the environment (see c below).
b	• NWL to provide 'appropriate treatment' to all other sea outfalls by 2005. [Funded under AMP2] • Agency to ensure that requirements of UWWTD are met.	Under the UWWTD, all other sea outfalls in the area must have 'appropriate treatment' in place by 2005.
c	• NWL to undertake comprehensive studies on all High Natural Dispersion Areas (HNDAs) and reports to the Agency (now submitted). • Agency to audit above studies to ensure discharges are having no adverse effect on the environment.	Under the UWWTD, all discharges to High Natural Dispersion Areas (HNDAs) must have no adverse effect on the environment.
d	• Agency to continue monitoring River Blyth estuary through the assessment of sediment quality for Polychlorinated Biphenyls (PCBs) and cadmium.	Quay restoration at Blyth to combat PCB problems has been completed but post project monitoring is needed.
e	• NWL to provide secondary treatment to sewage discharges to the Blyth estuary by 2001. [Funded under AMP2]	Under the UWWTD, sewage discharges to the Blyth estuary must receive secondary treatment by 2001.

Who's Involved

Environment Agency, Northumbrian Water Limited, industry, Office of Water Services, local authorities.

Background

Many of the water quality problems shown above are due to the effects of discharges from NWL discharges. Any work by NWL for the improvement and maintenance of the water supply, sewage treatment works and sewerage systems must be planned for in their Asset Management Plan (AMP). For further details see Issue 3.

Much of the investment to improve coastal water quality is being driven by two EC Directives:

The Urban Waste Water Treatment Directive (91/271/EEC) (UWWTD) (to be implemented in the UK by the year 2005) which applies to discharges of domestic sewage and certain industrial discharges made into fresh and saline waters. Standards are set down for discharge quality and levels of treatment are specified according to the size of discharge and to the characteristics of the receiving water. The Directive also seeks to apply more stringent effluent standards to discharges into 'sensitive' waters and may require the addition of tertiary treatment to remove nutrients. Discharges from population

equivalents (pe) of greater than 15,000 generally require secondary treatment to be provided by the end of the year 2000; those between 10,000 and 15,000 pe must receive such treatment by the end of 2005. Smaller discharges must receive "appropriate treatment" by the end of 2005. "Appropriate treatment" will depend on the needs of the receiving water.

Discharges to sea of between 10,000 and 150,000 pe (and, exceptionally, with the agreement of the European Commission, those greater than 150,000 pe) to "high natural dispersion areas" (HNDAs) may require only primary treatment. In this case, the discharger must demonstrate to the Agency by "comprehensive studies" that the discharge has no adverse effect on the environment. These must be reviewed every four years. A number of HNDAs have been designated by the DoE on this stretch of coast at Amble, Newbiggin and Cambois.

The Bathing Water Directive (76/160/EEC) designates waters which are regularly used by the public for bathing purposes. These waters must comply with microbiological standards and where failures are recorded, improvement plans must be developed. The numbers of bathing waters failing these standards are steadily decreasing due to capital expenditure by NWL directed to the treatment of crude outfalls, long sea outfall attenuation and sewerage interceptor schemes. Recent schemes include those at Newbiggin by the Sea and Whitley Bay. Future schemes are planned at Cambois and Amble.

Further details on this topics can be found in Sections 5.7, 6.1 of Part 2 and Appendix 7.2.

Issue 5 Groundwater Protection

The major aquifer in the Cheviot and East Northumberland area is the Fell Sandstone. Groundwater is important not only for water supply, it also feeds surface water, wetlands and their wildlife. Groundwater is vulnerable to many activities that can cause pollution through underground seepage. Once water underground is polluted, it is extremely difficult and costly to remediate. Protection of groundwater quality is therefore vital.

Objective

- To protect groundwater from the risk of pollution.

No	Proposals/Action Needed	Reasons/Advantages
a	Produce Groundwater Vulnerability Maps.	These can be used to ensure inappropriate operations do not take place in high risk areas.
b	Define groundwater source protection zones (additional monitoring boreholes may be required).	Provide adequate groundwater protection.

Who's Involved

Environment Agency, farmers, local authorities, industry.

Background

Groundwater is not only protected to maintain water supplies from aquifers, it also naturally feeds surface waters through springs and by base flows to rivers. Its presence is often important in supporting wetlands and their ecosystems. Removal or diversion can affect total river flow. A reduction in either the quantity or the quality of the contributing groundwater can significantly influence surface water and the achievement of water quality standards. Surface water and groundwater are intimately linked in the water cycle, with many common issues. The protection of groundwater resources from the effects of human activity is therefore just one facet of the total protection of the water environment.

The Agency's Policy and Practice for the Protection of Groundwater has two aspects of protection:

Groundwater Resource Protection

Vulnerability maps are currently being produced which take into account the following factors:

- presence and nature of overlying soil;
- presence and nature of drift;
- nature of strata;
- depth of unsaturated zone.

Groundwater Source Protection

This relates to the specific protection which may be appropriate for individual sources. Three zones are generally defined for each source. The orientation, shape and size of the zones are determined by the hydrogeological characteristics of the strata and the direction of groundwater flow.

The Fell sandstone to the north of the Cheviot and East Northumberland area are classified as a major aquifer.

Further details on topics related to this issue can be found in Sections 4.1, 4.2, 5.6 and 6.1 of Part 2.

Issue 6 Minewaters

Deep coal mining and associated pumping to protect mineworkings has virtually ceased in the Cheviot and East Northumberland LEAP area. In other parts of the country, the cessation of pumping and flooding of coal mines has resulted in contaminated discharges to the surface. In particular, rusty deposits of iron hydroxide in the receiving waters have caused severe environmental damage which is both difficult and expensive to remedy. The threat of pollution from this source is a major issue with many minewater discharges currently affecting watercourses within the LEAP area.

Objective

- To work with others to minimise the effect of abandoned mines and minewaters on the environment.

No	Proposals/Action Needed	Reasons/Advantages
a	To provide management information (possibly by drilling new monitoring boreholes) to assist in minimising the effects of the cessation of minewater pumping.	To be able to predict future problems with some degree of accuracy.
b	Following the Minewaters Project, undertaken recently on abandoned mine sites, carry out further investigations to identify potential improvement schemes.	Those sites having the greatest impact on the receiving watercourses can be targeted for improvement schemes.

Who's Involved

Environment Agency, the Coal Authority, local authorities, landowners.

Background

With the exception of Ellington all deep coal mines in the LEAP area are now closed, and the associated pumping ceased. In the past there were many shallow drift mines along the western edge of the exposed coalfield, each pumping minewater to the surface. Many of these were linked to newer deeper collieries to the east by connections that were often unrecorded. Many interconnections were made during the Second World War to provide alternative means of escape in the event of bomb damage. As the mines closed, their abandoned workings filled with water before overflowing either to a watercourse or through the many connections to the next colliery to the east.

Following the closures of Bates Colliery at Blyth, all pumping south of the Stakeford Dyke ceased. The workings are being allowed to flood, with the rising minewaters being monitored by the Coal Authority. Overflows of minewaters to the surface are predicted in Blyth around 2006.

To the north of the Stakeford Dyke, deep mining and minewater pumping is still taking place at the privately-owned Ellington Colliery. In addition, pumping from several large opencast sites also takes place.

In mid-Northumberland pumping has recently ceased following the closure of the licensed Whittle Colliery. The mine is connected to the former Shilbottle Colliery, but both are isolated from the rest of the Northumberland coalfield. The proposal above outlines the Agency's intention to investigate the possibility of surface overflows of potentially polluting minewater, and the risk to surface waters which may result.

There are also many minewater discharges currently affecting watercourses within the LEAP area. The extent of the problem has never, until recently, been quantified. The Agency carried out a project in 1996/97 to prioritise which of these abandoned coal sites is having the greatest impact on the receiving watercourse. The Agency will have powers to deal with pollution from any mines abandoned after 1999 however, mines abandoned before this date are exempt.

Further details on topics related to this issue can be found in Sections 4.1, 4.2 and 5.5 of Part 2.

Issue 7 Contaminated Land

The Cheviot and East Northumberland LEAP area has a legacy of land contamination principally in the south east of the area (the impact of minewaters is dealt with in Issue 6). New regulations will soon be implemented and will have a major effect on how contaminated land issues are dealt with. The implementation of the new regime will mostly be the responsibility of the local authorities. However, the Agency will be the 'lead authority' for 'special sites'.

Objective

- To work closely with local authorities and others to secure the remediation of contaminated land sites in the Cheviot and East Northumberland LEAP area.

No	Proposals/Action Needed	Reasons/Advantages
a	Promote and advise on redevelopment of contaminated land sites.	Assist remediation so that land is brought into beneficial use.
b	Once the duties of the Agency and local authorities towards contaminated land have been clarified we will take responsibility for regulating 'special sites'.	Fulfills duty under the Environment Act 1995

Who's Involved

Local authorities, landowners, developers, Environment Agency.

Background

The Environment Act 1995 contains the framework for a new contaminated land regime. The contaminated land provisions of the Act will come into force when regulations have been made and official guidance has been published. The 'special sites' for which the Agency will be 'lead authority', will be those which represent a particularly serious threat to the environment, including certain closed landfill sites. The Agency will develop its role as a consultee with local authorities on technical details and where there is local expertise.

The remediation of contaminated land can cost substantial sums of money. Progress in dealing with sites is likely to depend on government policy and the private sector in relation to the availability of funding. Often the feasibility of carrying out remediation is influenced by the degree of 'added value' conferred on land by remediation and redevelopment.

Dealing with contaminated land will make heavy demands for information. The Agency has historic information relating to pollution incidents, industrial processes, historic or illegal tipping. The management of information and the exchange of information with local authorities will be an important role of the Agency.

Further details on topics related to this issue can be found in Section 5.4 of Part 2.

Issue 8 Water Resources

Water is abstracted from the rivers in the LEAP area for a variety of uses, mainly for public water supply. All the rivers in the area are 'non-regulated', which means that their flow levels are not maintained by reservoirs or water transfers from other catchments. Fontburn Reservoir has a small compensation release but it does not act to regulate river flow. Owing to the lack of flow regulation it is extremely important that applications for new licences are only granted after careful consideration of their possible effects on the ecology of the river. A new abstraction licensing policy has been introduced in 1997 to ensure protection of river ecology.

Concerns have been expressed by local landowners that there may have been an increase in water abstraction from the River Till for the irrigation of carrot and potato crops. The Agency has no powers to control abstractions from the River Till and uncontrolled river abstractions could have an effect on the wildlife of the river.

Objective

- To manage water resources to achieve a balance between the needs of water users and the needs of the environment.
- To work in partnership with others to ensure that any increase in surface water abstractions in the River Till does not lead to environmental damage.

No	Proposals/Action Needed	Reasons/Advantages
a	Monitor the current abstractions to ensure compliance with current licences.	Ensures current operating agreements are implemented.
b	Evaluate all new abstraction applications using the Surface Water Abstraction Licensing Policy (SWALP).	This will allow the development of an abstraction policy which minimises disturbance to the river's fish and invertebrate life.
c	Undertake monitoring of abstraction from the River Till during the summer of 1997 to gather information on the extent of abstractions.	Will allow greater understanding of the issue.
d	Liaise with River Tweed Commissioners, Tweed Forum, English Nature, landowners and Scottish Environmental Protection Agency to try to increase understanding of the reported increase in abstractions from the River Till.	Involves all parties in trying to resolve the issue.

Who's Involved

Environment Agency, Northumbrian Water Limited, River Coquet Fisheries Improvement Association, recreational groups, landowners, abstractors, English Nature, River Tweed Commissioners, Tweed Forum and the Scottish Environmental Protection Agency (SEPA).

Background

The rivers in the Cheviot and East Northumberland area are 'non-regulated' therefore, it is important that abstraction licences' applications are assessed carefully.

Surface Water Abstraction Licensing Policy

The Surface Water Abstraction Licensing Policy provides a framework for the Agency to determine any new abstraction licence applications so as to strike a balance between the needs of abstractors and the environment. It incorporates five principles:

- the protection of low flows from the impact of abstraction;
- the preservation of flow variability in the river;
- the protection of existing abstractors and other rights;
- the concept that some rivers are more sensitive to the impact of abstraction and so require greater protection;
- the need to allow abstractors to make optimum use of their licences whenever water is available.

River Till

Under Section 4 of the Water Resources Act 1991 the Agency has no control over surface water abstractions from the River Tweed and its tributaries. Accordingly, there are no surface water abstractions licensed in the Tweed catchment, which includes the River Till. Groundwater abstractions in the Till catchment are licensed by the Agency. Further details on topics related to this issue can be found in Sections 5.6 of Part 2.

Issue 9 Sustainable Waste Management

The Government has set various targets in order to promote more sustainable waste management. One of these is the target to recycle and compost 25% of household waste by 2000. Many local authorities in the area are unlikely to meet the targets due to financial considerations and organisational problems. More cooperation could ensure that economies of scale are identified and that competition is minimised.

Objectives

- To promote cooperation between Waste Collection Authorities (WCAs), Waste Disposal Authorities (WDAs) and the waste management industry.

No	Proposals/Action Needed	Reasons/Advantages
a	The Agency offers to establish a Sustainable Waste Management Forum.	• Promotes sustainable waste management practices in the area. • Facilitates cooperation between the various organisations. • Ensures economies of scale are identified and works towards achieving them. • Ensures that competition for waste or for markets is minimised. • The targets are more likely to be achieved. • Information and data on waste issues can be shared.

Who's Involved

Environment Agency, Officers and Members from Waste Collection Authorities and Waste Disposal Authorities and possibly representatives from the waste management industry.

Background

There are well publicised targets set out in the Government's strategy for sustainable waste management (Making Waste Work). These include:

- the reduction of waste going to landfill from 70% to 60% by 2005;
- recycling and composting of 25% of household waste by 2000;
- the recovery of 40% of municipal waste by 2005;
- easily accessible recycling facilities for 80% of households by 2000.

At present the amount of waste passing through sustainable waste management technologies in the LEAP area is extremely low. Most local authorities recycle less than 4% of household waste (with the exception of Castle Morpeth who recycle 17%). There will need to be a rapid change in waste management philosophy if this situation is to change within the LEAP area by the target date.

Part of the problem of not meeting the targets is caused by financial and organisational issues. The Agency is not in a position to directly ease financial problems however, the landfill tax and possibly the new Packaging Regulations will play a major role in making sustainable waste management economically viable in comparison to landfill.

Further details on topics related to this issue can be found in Section 5.8 of Part 2.

Issue 10 Sites Exempt from Waste Management Licensing

Due to the introduction of new legislation many sites that handle or dispose of waste have recently been made exempt from Waste Management Licensing. Some of these sites have the potential to pollute the environment but the extent of this is unknown. There is no specific requirement for the Agency to inspect or monitor the sites, so the exemptions can be abused. There are possibly many sites that should have registered with the Agency as exempt but have failed to do so.

Objectives

- To ensure that exempt activities do not cause pollution of the environment or harm to human health.
- To determine whether exempt sites are complying with the exemptions.

No	Proposals/Action Needed	Reasons/Advantages
a	Undertake a survey to establish the number and type of unregistered, exempt activities.	• Ensures all waste handlers are complying with the legislation. • Establishes the potential workload. • Provides information on waste disposal and recycling routes.
b	Undertake a survey to establish the amount of waste now going to exempt sites that previously went to licensed sites.	• Quantifies the amounts and types of waste going via relatively uncontrolled disposal routes. • Assesses the rate of increase in exempt activities.
c	Undertake a survey to establish the pollution potential of various exempt activities.	• Will provide information to establish the frequency of monitoring needed. This can then be used consistently.
d	Develop a policy of inspections and carry out inspections accordingly, with frequencies relevant to specific exemptions.	• Ensures exempt activities are complying with the exemption requirements. • Ensures regulatory control of previously uncontrolled disposal routes.
e	Undertake an assessment of current registration systems and agree a consistent registration format. Develop a regional/national database.	• Standardised registration. • Easier access for enquiries.

Who's Involved

Environment Agency, exempt site operators.

Background

The Government's policy is to encourage the recycling and reuse of waste and there has also been a move towards deregulation. To further this aim a scheme of exclusions and exemptions were introduced by the Waste Management Licensing Regulations 1994. The waste management industry, in a recent survey, identified that nationally there is approximately 30 million tonnes of waste per annum that is being disposed of via exempt activities.

The Regulations list 45 exemptions which can be broken down into 5 main categories:

(i) activities for which adequate controls are provided by other legislation;
(ii) those covering recovery or reuse of wastes;
(iii) activities leading to the recovery or reuse or waste;
(iv) disposal of own waste at the place of production;
(v) other deposits.

There are various problems associated with the exemptions:

- Exempt activities must be registered with the Agency but the penalty for failing to register is an insignificant £10.
- The exemptions apply to an extensive range of waste materials from diverse sources and with varying potential to pollute and little monitoring or control takes place.
- Only metal recycling sites attract a registration fee and have a prescribed monitoring regime, although the Agency has a general duty to carry out periodic inspections of waste management activities. There are no fees to finance any monitoring. This goes against the 'polluter pays' policy.

- The conditions for the exemptions tend to be unspecific with some being difficult to interpret. This makes controlling and enforcing the exemptions difficult until further clarification or guidance is given.

- The disposal of waste at an exempt site is also exempt from landfill tax duty therefore, the operator can have an unfair commercial advantage over regulated waste management facilities. As a result the amount of waste being disposed of at exempt sites is increasing.

The exemptions, from Schedule 3 of the Waste Management Licensing Regulations 1994, that cause the most concern are:

Paragraph 7	The spreading of specific wastes on land for the benefit of agriculture or ecological improvement. Experience has shown that this exemption is used for the disposal of waste without generally proving the benefit. If the wastes in question were allowed onto a licensed waste disposal site they would be subject to strict control measures (also refer to Issue 11).
Paragraphs 9 & 19	The deposit of waste for reclamation or improvement and construction purposes. It particularly exempts the construction of recreational facilities and vast quantities of material have been disposed of without any regulatory control or monitoring eg a golf course accepting 900,000m³ of waste (also refer to Issue 13).

There are approximately 250 registered exempt activities within the Cheviot and East Northumberland area and an unknown number of activities which have not been registered.

Further details on topics related to this issue can be found in Sections 5.8 of Part 2.

Issue 11 Land Spreading of Wastes

Certain types of waste, such as liquids or sludges from abattoirs and food and drink preparation, are spread on land to dispose of them. The wastes can act as nutrients to the soil or as a soil conditioner. The activity is exempt from Waste Management Licensing if it achieves a 'benefit to agriculture' or 'ecological improvement'. The Agency is concerned that this is not always the case and that it could be open to abuse as a means of cheap disposal, but we have few controls and not enough information to check this.

Objective

- To ensure that the land spreading of waste does not cause pollution of the environment.
- To obtain better information in order to check whether the spreading of waste is of benefit to the land and to check that overspreading is not occurring.

No	Proposals/Action Needed	Reasons/Advantages
a	Request more information on the landspreading activities.	• Will provide necessary information to determine whether the application is beneficial.
b	Consult with ADAS on the suitability of application rates with reference to any available Farm Waste Management Plans.	• May identify potential risks of pollution. • Will enable a more informed decision as to whether an application is beneficial.
c	Check the quantities of materials being land spread in particular areas over a 12 month period, with some monitoring of the landspreading.	• Will check whether wastes are being overspread. • Could promote best practice.
d	Liaise with environmental health departments.	• Enables complaints from the public to be dealt with.

Who's Involved

Environment Agency, ADAS, companies landspreading waste, landowners, local authorities.

Background

The spreading of certain wastes on agricultural land is exempt from Waste Management Licensing if it achieves a 'benefit to agriculture' or 'ecological improvement' . There are certain criteria that must be satisfied for the exemption, and particulars must be forwarded to the Agency in advance of spreading. These particulars are very limited and only include things such as: the quantity, location, date and frequency of the spreading of the waste. It is difficult to determine from the information provided how much waste is spread in total.

From the information it is difficult to determine whether:

- the spreading will result in the benefit to agriculture or ecological improvement;
- the landspreading will cause pollution of the environment and is in accordance with best practice.

Properly qualified advice is needed to determine what application rate is appropriate for each waste material, soil and site. This would enable the Agency to check that overspreading is not occurring and that it is within the terms of the exemption. Most of this information could be obtained from Farm Waste Management Plans including: field plans; soil analysis; suggested quantities of nutrients for various types of crops. The suitability of the spreading rates could then be assessed with the assistance of ADAS.

Occasionally there are problems with odour from the landspreading. The local authority has a duty to take reasonable steps to investigate odour complaints can serve a notice to stop or change the practices in order to stop or restrict the problem.

Further details on topics related to this issue can be found in Sections 5.8 and 5.10 of Part 2.

Issue 12 Illegal Tipping of Waste

Illegal tipping of waste causes pollution of the environment and is unsightly. Since the creation of the Agency the number of complaints regarding illegal tipping has increased. This is partly due to the introduction of the Landfill Tax. Illegal tipping is linked to businesses being unaware of their responsibilities under the Duty of Care.

Objectives

- To reduce illegal tipping through education of businesses, surveillance of offenders and liaison with local authorities.

No	Proposals/Action Needed	Reasons/Advantages
a	Improve public awareness regarding the importance of environmental protection from waste tipping via: • seminars to Green Business Clubs and other organisations; • educational campaigns.	• Makes companies aware of the legislation that is applicable to them and the penalties. • Targets many companies at one time.
b	Increase surveillance exercises at illegal tipping black spots including the use of CCTV cameras.	• Provides good evidence that can be used to prosecute the flytippers.
c	Undertake vehicle stop campaigns to check: vehicles suspected of carrying waste; carriers have a valid registration with the Agency (eg Lynemouth)..	• Identifies organisations/individuals operating illegally. • Has proven very successful in the past. • Value as a deterrent.
d	Maintain liaison with local authorities.	• Encourages cooperation and the subsequent deployment of local authority resources. • Creates exchange of information.

Who's Involved

Environment Agency, Northumbria Police, other agencies, local authorities, companies, Tidy Britain Group.

Background

Illegal tipping (also known as fly tipping) of waste has three effects:

- a detrimental effect on the environment at the expense of others;
- financial benefits to those disposing of the waste illegally;
- a detrimental impact on the local regulated trade or industry.

The number of complaints regarding illegal tipping received by the Agency more than doubled during 1996/1997. This is probably due to:

- the higher profile of the Agency compared to the Waste Regulation Authorities;
- the introduction of the Landfill Tax in October 1996.

The creation of the Agency and associated publicity, the introduction of a 'hotline' telephone number, and the continuing liaison with district councils have all raised the profile of the Agency. We are often contacted by people with the view that 'no one else is able to do anything, I wonder if you can'. We may pass the complaint on to another authority if they are responsible, but when the remedial work or enforcement is carried out the person who complained will believe that the change resulted from contact with the Agency. This then fuels further contact on a number of issues. The Landfill Tax is yet to have its greatest impact. Some of the annual contracts between companies and waste contractors have not been reviewed since the tax was introduced. It is anticipated that the significant increase in costs for these services may result in producers of waste using altemative, cheaper methods of disposal. These could fail to meet their legal obligations and could cause damage to the environment.

The reports and complaints on illegal tipping of waste tend to be seasonal, with peak periods being the spring and summer months. The types of waste may vary but largely consist of either builder's type waste or garden wastes. Waste producers, both businesses and the public, need to be made aware of their responsibilities, particularly small companies which may be unaware of their responsibilities under 'The Duty of Care'. The investigation of persistent flytippers can be targeted and made more consistent.
Further details on topics related to this issue can be found in Section 5.8 of Part 2.

Issue 13 Working with Industry - Minimising Waste and Preventing Pollution

There are many opportunities for the Agency to work with industry to encourage more sustainable practices, which can have wide environmental benefits. Waste minimisation and increased process efficiency through the 3Es methodology (emissions, efficiency and economics) can reduce emissions and save on raw materials, energy and disposal costs. Many companies are unaware of the environmental legislation that already applies to them and will need guidance on new legislation. There is great scope for encouraging environmental best practice which can reduce pollution.

Objectives

- To promote best practice in industry relating to pollution prevention.
- To educate companies on environmental legislation.
- To promote waste minimisation and the 3Es methodology.
- To carry out risk analysis in drinking water catchments.

No	Proposals/Action Needed	Reasons/Advantages
a	To steer and coordinate waste minimisation projects in the Cheviot and East Northumberland area and support those that offer the maximum environmental benefit.	• Promotes sustainable development. • Provides best practice case studies for other companies within the LEAP area. • Reduces emissions to the environment. • Forms beneficial relationships with external public and private sector organisations. • Reduces duplication of effort. • Enables companies to progress from one initiative to another where appropriate.
b	To progressively extend the 3Es initiative in the Cheviot and East Northumberland area.	• Reduces emissions to the environment. • Improves process efficiency and identifies cost savings for operators.
c	To continue carrying out pollution prevention and risk analysis visits in conjunction with waste surveys, targeting areas with known pollution problems.	• Reduces pollution risks from industrial premises. • Enables companies to improve compliance with regulations. • Reduces the amount of end of pipe regulation needed.
d	Keep companies up to date with environmental legislation and best practice through seminars/workshops, in particular ensure awareness of the new Packaging Regulations.	• Ensures businesses are aware of environmental legislation.
e	Continue work with the North East Chamber of Commerce on the Local Partnership initiative.	• Strengthen links between the Agency and business, ensuring business are aware of environmental legislation.

Who's Involved

Industry, North East Chamber of Commerce, CBI, waste minimisation projects, Environment Agency.

Background

The Agency has various statutory responsibilities relating to industry these include: Integrated Pollution Control for some of the most potentially polluting industrial processes; consents for effluent discharges; regulations relating to the management of wastes, such as Duty of Care, Special Waste and Producer Responsibility for Packaging. In addition there are many opportunities for the Agency to work with industry towards more sustainable practices which have environmental benefits beyond compliance with regulations.

Waste Minimisation Projects

Industry and the environment would benefit from expanding the current waste minimisation projects which aim to reduce waste at source rather than dealing with it afterwards. This has the benefit of: reducing emissions to the environment; saving on raw materials; energy and disposal costs; improving the companies' environmental performance. The Agency is currently supporting a number of projects in the Northumbria Area including the Northumbria Waste Minimisation Club and the Newcastle Initiative Environmental Services Project, and is involved in other projects in the Tyne LEAP and Wear LEAP areas (eg Project Tyneside).

The 3Es Methodology

The 3Es (emissions, efficiency and economics) methodology, devised by the former HMIP (a predecessor to the Agency) in conjunction with Business in the Environment, goes further than waste minimisation. It is a structured technique to achieve improved environmental performance through process optimisation. It involves reviewing an industrial process in a systematic way to identify potential improvements and to assess their impact on 'emissions, efficiency and economics'. It considers both actual and potential emissions. This methodology has been successfully applied to several companies in the LEAP area. The benefits of the 3Es methodology could be extended further and to a wider range of industry, not just to those authorised by Integrated Pollution Control.

Environmental Legislation

Companies need to be more aware of the legislation that applies to them such as the Duty of Care, the new Special Waste Regulations and the new Producer Responsibility Obligations for packaging waste. There is great scope for companies to be encouraged to use environmental best practice which can reduce the risk of pollution incidents, reduce waste and releases to the environment and may save costs.

Pollution prevention campaigns

Pollution prevention campaigns have been initiated when there has been a pollution problem in a particular area. There is already progressive integration of these visits to ensure that companies obtain as much advice as possible from one point of contact with the Agency.

Further details on topics related to this issue can be found in Sections 1.3 and 5.3, 5.7, 5.8 of Part 2.

Issue 14 Working with Farmers and Foresters - Minimising Waste and Preventing Pollution

Farming and forestry are major land uses in the Cheviot and East Northumberland area. Over recent years, pollution incidents from agricultural and forestry sources have reduced. However, agricultural and forestry operations are still a potential pollution risk. This is a particular problem upstream of surface water abstractions for public water supplies, such as Warkworth and Mitford (see Issue 3). Agricultural and forestry activities are also exempt from waste management licensing (see Issue 11) and therefore, disposal of solid wastes from farming, and possible forestry, activities could be an, as yet undefined, issue. (Issue 21 deals with the Agency's involvement with farmers and foresters to enhance river and wetland habitats).

Objective

- To work with farmers, foresters and their advisers to minimise the risk of environmental pollution as a result of their activities.

No	Proposals/Action Needed	Reasons/Advantages
a	Undertake pollution prevention campaigns and farm surveys to identify potential risks to the environment from agricultural and forestry sources in the LEAP area. These proposals should be coordinated with work undertaken by other organisations, in particular MAFF and the Farming and Rural Conservation Agency (FRCA), and targeted at specific areas of risk such as drinking water catchments.	Will ensure best use of resources to minimise environmental risk from agriculture and forestry activities.
b	Integrate a solid waste minimisation and disposal element into the above.	Will ensure solid waste management is considered in farm campaigns.
c	Monitor the application of Asulox and other herbicides in the LEAP area if groundwater, surface water or fish may be affected.	Assist in ensuring the correct use of pesticides to protect groundwater, surface water and fish.

Who's Involved

Environment Agency, farmers, foresters, MAFF, Farming and Rural Conservation Agency, ADAS, National Farmers Union, Farming and Wildlife Advisory Group, Forest Enterprise, Forestry Authority, Northumbrian Water Ltd, Northumberland National Park, Rural Development Commission.

Background

Pollution of ground and surface waters can arise as a result of poor management practice for the control of: the range of agrochemicals used in modern food production; silage effluent and slurry disposal associated with intensive stock farming. Agricultural pollution prevention has been greatly aided by the introduction of The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulation 1991 and the availability of capital grants for fixed waste handling equipment from the Ministry of Agriculture, Fisheries and Food (MAFF). The regulations ensure that new or substantially altered waste storage facilities comply with minimum sizing and construction criteria.

Over recent years, pollution incidents from agricultural and forestry sources have reduced in number. This reduction is a result of major investment by the agricultural community in anti-pollution equipment, slurry stores, dirty water systems, pesticide storage areas etc, and an increase in awareness of the problem as a result of pollution prevention campaigns by the Agency, its predecessor organisations, MAFF and others.

This issue reflects the need for the Agency to integrate its activities and work in partnership with farmers, foresters and other organisations to minimise waste, prevent pollution and enhance the environment in rural areas.

Further details on topics related to this issue can be found in Sections 1.3, 5.8 and 5.10 of Part 2.

Issue 15 Working with Other Agencies

The Agency is one of several Government agencies involved in management of the environment, others include English Nature, the Countryside Commission, Forest Enterprise, the Forestry Authority, English Heritage, the Farming and Rural Conservation Agency and across the border the Scottish Environmental Protection Agency. Each agency has a different remit, but they are all involved in the management of the environment and develop their own business plans. To ensure an integrated approach to management of the environment and the efficient use of resources the Agency needs to work closely with these other agencies as well as businesses, farmers, foresters and voluntary bodies.

Objective

- To ensure close co-operation between all agencies working in the Cheviot and East Northumberland LEAP area and achieve the efficient use of limited resources.

No	Proposals/Action Needed	Reasons/Advantages
a	Continue effective liaison with English Nature, particularly in relation to river SSSIs and the Habitats Directive (see Issue 24).	• Statutory requirement in many cases. • Avoid duplication of effort. • Pooling of resources.
b	Identify actions from the Countryside Commission and English Nature's Countryside Character/Natural Areas Programme where the Agency could take the lead, and assist with actions which fall within its remit where resources permit.	• Effective use of resources. • Achievement of mutually beneficial objectives.
c	Continue liaison with statutory forestry agencies.	• Achievement of mutually beneficial objectives.
d	Establish liaison with the newly formed Farming and Rural Conservation Agency (FRCA).	• Achievement of mutually beneficial objectives. • Raise the profile of wetland management within the Countryside Stewardship Scheme. • Ensure Agency input to the Countryside Stewardship Scheme through the setting of priorities and commenting on individual applications.
e	Continue liaison with English Heritage to ensure protection of sites of historic importance and identify possible joint actions to improve educational aspects of these sites.	• Achievement of mutually beneficial objectives. • Ensure protection of sites of historic importance.
f	Establish liaison with the Scottish Environmental Protection Agency (SEPA).	• Ensure close cross border cooperation on environmental issues.

Who's Involved

English Nature, the Countryside Commission, Forest Enterprise, the Forestry Authority, Farming and Rural Conservation Agency, Northumberland National Park, MAFF, Rural Development Commission, Government Office for the North East, Environment Agency, Scottish Environmental Protection Agency (SEPA).

Background

The Countryside Commission and English Nature are currently developing their joint Countryside Character Programme . The Countryside Commission's Countryside Character Programme considers actions required to maintain and enhance the landscape of areas with distinct landscape character. English Nature's Natural Areas Programme focuses on the management required for areas with distinct habitat types. Wherever possible, English Nature and the Countryside Commission have agreed that their boundaries should coincide and have created a 'new map of England' (see Map 18 in Part 2 for the details of this in the Cheviot and East Northumberland LEAP area).

The Farming and Rural Conservation Agency (FRCA) is responsible for the management of agri-environment schemes such as the Countryside Stewardship Scheme and for providing advice to landowners. The Agency will need to liaise with the FRCA and can offer advice on specific schemes.

To gain the maximum benefit from all these initiatives and those of the other agencies mentioned above, effective communication must be developed between all the agencies. Further details on topics related to this issue can be found in Sections 1.3 and 5.10, 5.12 and 5.15 of Part 2.

Issue 16 Estuary Management

The estuaries along the Northumberland coast are important for wildlife and water-based recreation. The urban areas around the estuaries support working communities and there is some pressure for development. In order to coordinate management of the estuaries, 'Estuary Management Plans' have been, or are being, prepared for the Tweed, Aln, Coquet, Wansbeck and Blyth estuaries. This issue relates to the Agency's role in the Estuary Management Plans.

Objectives

- To develop and implement integrated plans to promote the sustainable management of the estuaries of the LEAP area for a variety of uses.
- To provide a policy framework for realising schemes to enhance and improve the management of existing estuary resources.
- To provide a mechanism for reaching a consensus between all the agencies with an interest in an estuary for future management policy.
- To use these non-statutory plans to inform the development and review of statutory development plans by local authorities.

No	Proposals/Action Needed	Reasons/Advantages
a	Continue the Agency's involvement in the Estuary Management Plans for the Tweed, Aln, Coquet, Wansbeck and Blyth.	Provides a mechanism to deal with conflicts of interest within the estuary and to reach a consensus for the management of the estuary in the future.
b	Ensure the Agency is involved in the Working Groups to develop policy and oversee implementation of the plan for each estuary.	The Agency will be working with the key partners in the management of each estuary.
c	Undertake actions where the Agency is identified as lead agency, and assist with actions which fall within its remit, where resources permit.	Many actions will be undertaken in the course of the Agency's normal work programme.
d	Work with the Northumberland Coast Project and English Nature to co-fund the employment of a Project Officer to cover all five estuaries, if funds allow.	Better coordination of actions and assistance for the working groups for each estuary.

Who's involved

Local authorities, Harbour Commissions, Environment Agency, English Nature, National Trust, Countryside Commission, Northumberland Wildlife Trust.

Background

Each Estuary Management Plan has been prepared by independent consultants working to a steering group of interested organisations. This has generally included the local authorities, Harbour Commissions, the Environment Agency and English Nature, and funding has been split between several agencies including the Agency. During the production of the plans the views of a range of interested parties have been taken on board. The plans identify specific actions which should be taken to resolve conflicts as well as providing policies to be followed in the event of new development being proposed in the area. Plans were completed for the Aln and Coquet Estuaries in April 1996 and for the Blyth and Wansbeck in May 1997. The Tweed plan should be complete in July 1997. In order to coordinate the implementation of these plans it is proposed that a Project Officer is appointed by the Northumberland Coast Project with some funding provided by the Agency and English Nature.

The management of the Northumberland's coast and estuaries is a complex matter involving many different organisations. The Agency is involved in all of the above initiatives and has been identified as a partner and in some cases, as the lead partner in many actions. The Agency will need to be represented on subsequent groups set up to oversee the implementation of the plans.

Issue 17 The Northumberland Coast

Northumberland's coastline is one of the North East's greatest natural assets. Many organisations are involved in its management. This issue relates to the Agency's role in management of the Northumberland coast.

Objective

- To protect and enhance the Northumberland coast in partnership with others.

No	Proposals/Action Needed	Reasons/Advantages
a	Prepare, in conjunction with key partners, a Shoreline Management Plan (SMP) for the LEAP area from St Abb's Head to the River Tyne for coastal and sea defences. Undertake beach monitoring surveys to assist in the production of the SMP.	Improves: understanding of coastal processes; prediction of the likely future evolution of the coast; identification of assets at risk; consultation between organisations with an interest in the shoreline.
b	Continue the Agency's involvement in the Northumberland Coast Project.	Assists in ensuring a coordinated and integrated approach to the management of the Northumberland coast.
c	Undertake a joint project to produce a Recreation Strategy for the Northumberland Coast (see Issue 25).	This will ensure any increase in the recreational use of the coast is carefully controlled and planned to minimise any adverse effects.
d	Contribute to the production of a Scheme of Management for the marine Special Area of Conservation (SAC) on the Northumberland Coast (see Issue 24).	Fulfills Agency's duties under the EC Habitats Directive.

Who's Involved

Coastal Authorities' Group, local authorities, MAFF, English Nature, Countryside Commission, National Trust, Northumberland Wildlife Trust, recreation groups, RSPB, Environment Agency.

Background

The coast of Northumberland is one of the region's greatest natural assets. It provides habitats for a wide variety of plants and animals. The coast is an important resource for people as there are: ports, with their associated manufacturing and commercial developments; farms on the fertile plain; fishing industry; housing developments; recreational facilities including marinas and caravan sites. Visitors are increasingly attracted to this area of high amenity value. In recognition of their importance there are several management initiatives in place.

Northumberland Coast Management Plan

Northumberland County Council has, in liaison with the other local authorities and interested bodies, including English Nature, the Countryside Commission, National Trust and Northumberland Wildlife Trust, drawn up a Northumberland Coast Management Plan. The purpose of the plan is to set a framework for the coordinated management of the Northumberland Coast in the context of Structure and Local Plan policy. The plan is non-statutory and deals with the topics of landscape, nature conservation, tourism and recreation. It sets out management objectives, policies, proposals and priorities for action relating to these main topic areas. This management plan is considered an example of best practice in the field. Further information is available from the Coastal Officer, Northumberland County Council, County Hall, Morpeth, Northumberland. As part of the management plan the Agency is leading the production of a recreation strategy to promote improved access to the coast for sustainable recreational use.

Shoreline Management Plans

The Shoreline Management Plans will sets out a strategy for coastal defence for a specified length of coast. The strategy takes into account the natural coastal processes, human influences, land use and other environmental matters.

Further details on these topics are given in Sections 5.9 , 5.12 and 5.13 in Part 2.

Issue 18 Flooding of Land and Property

Rivers and watercourses can only accommodate a certain maximum flow. when this is exceeded, flooding occurs.

Objective

- To reduce the risk and provide timely warning systems for people and property against flooding from rivers and sea.
- To ensure all flood defence works fulfill the Agency's duty to further conservation.

No	Proposals/Action Needed	Reasons/Advantages
a	Undertake an investigation into using more sustainable methods for maintenance works in rivers; ie using natural techniques and sensitive erosion control measures (eg willow spiling).	New methods of working which have less impact on the river system whilst ensuring protection from flooding.
b	Review, using the Flood Defence Management System (FDMS), the cost/ benefit of undertaking maintenance works on main rivers. Target date for 60% of rivers completed is March 1998, and for 100% completion is March 1999.	Resources are targeted at areas where most benefit would be derived from maintenance works.
c	In accordance with the Agency's "Policy and Practice for the Protection of Floodplains" and with close liaison with the local planning authorities, ensure that development within the floodplain is controlled to reduce the risk of flooding (see Issue 1 and Section 5.1).	Effectiveness of floodplains for flood defence and environmental purposes secured and, where necessary, restored.
d	Produce Annual Maintenance Programme/ Specification ensuring that full account of the Agency's conservation duties are incorporated within the programme.	Methods of working will take account of conservation needs and will be more sustainable.
e	Prepare Section 105 Surveys to define the nature and extent of flood risks from information provided by local authorities. Surveys are carried out in accordance with the prioritisation given to the named areas.	Up-to-date information available.
f	Prepare a 10 year capital works programme for those areas where flooding can only be alleviated by construction of defences. Undertake cost/benefit analyses and environmental impact assessments to determine viability of works. Particular areas known to be at risk from flooding are shown below.	Improved protection for flood prone areas. Ensure fulfilment of statutory conservation duty.
g	Set up a formal project to look into the use of 'source control' methods which the mimic natural response to rainfall.	• Improved methods to deal with surface water run-off. • More sustainable techniques used to prevent flooding from run-off. • Pollution from run-off reduced.
h	Complete Water Level Management Plans for those Sites of Special Scientific Interest (SSSIs) identified (see below and Section 5.9).	• Assists in ensuring appropriate key water levels are safeguarded at SSSIs where the Agency is the 'operating authority'.

Who's Involved

Environment Agency, landowners, local authorities, MAFF, English Nature.

Background

Development in the Cheviot and East Northumberland area has generally been centred on the coalfield and coastal strip. One particular area known to be at risk of flooding is at Berwick upon Tweed.

It is neither practical, cost effective nor environmentally acceptable to protect all vulnerable properties. However, where the Agency's powers and funding permits, we will undertake a priority-based programme to provide protection to reduce the risk for people and property against flooding. This is achieved by the construction and maintenance of flood defences, through environmentally acceptable maintenance of the main river system, and by provision of effective and timely warnings.

Flood Defence Management System

The Flood Defence Management System (FDMS) has been introduced which allows the Agency to review the cost/benefit of undertaking maintenance works on all main rivers.

Section 105 Surveys

Section 105 surveys are currently being undertaken which will help to define floodplains, allowing development to be targeted away from flood risk areas.

Protection of Floodplains

The need to protect floodplains has not always been recognised and these areas have sometimes been subjected to inappropriate development. Rivers and their floodplains are finite resources which need to be managed in accordance with the principles of sustainable development. The Agency has recently published its "Policy and Practice for the Protection of Floodplains", which contains its policy statements on development within the floodplain.

Water Level Management Plans

Recent guidance has been issued by the Government on the preparation of Water Level Management Plans (WLMP) for Sites of Special Scientific Interest or other areas of high ecological or landscape importance. Where the Agency is the operating authority, we will liaise with English Nature to prepare a plan to ensure appropriate key water levels are safeguarded.

There are two SSSIs in the Cheviot and East Northumberland area which have been identified as requiring WLMPs in order to provide a means by which the water level requirements for a range of activities in a particular area, including agriculture, flood defence and conservation, can be balanced and integrated. The sites are: Till Riverbanks and Prestwick Carr. An Interim Management Statement has been prepared for Till Riverbanks and a Management Plan for Prestwick Carr.

Further details on this and related topics can be found in Sections 5.9 and 6.2 of Part 2.

Issue 19 Flood Warning

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.

Objective

- To reduce the risk and provide timely warning systems for people and property against flooding from rivers and sea.

No	Proposals/Action Needed	Reasons/Advantages
a	Undertake a programme of reviewing each catchment to determine hydrological character and forecasting techniques.	Better forecasting techniques would allow more accurate and timely flood warnings to be given.
b	Identify sites for new telemetry stations and include in three year Capital Programme.	Improved data for forecasting and monitoring of river levels.
c	Update the Flood Warning procedures to take account of new/improved data and new methods.	Up-to-date Flood Warning procedures always in place. Ensures accuracy of flood warning procedures.
d	Review of Flood Defence staffing levels to allow adequate cover for flood events. Ensure nominated staff are fully trained to carry out flood warning.	Ensures sufficient staff available to cover flood events.

Who's Involved

Environment Agency, local authorities, County Council and Unitary Authority Emergency Planners, general public.

Background

The Agency operates a 24 hour, 7 day a week flood warning system that provides a warning service for specific properties and locations that are at risk from flooding or the overtopping and/or breaching of defences.

We are the lead authority in disseminating warnings to the Emergency Services, local authorities and the public. This involves the use of specialist technology in addition to the cooperation and assistance of the media and local authorities.

At times of high water levels we patrol defences, operate flood defence structures, remove blockages and carry out any emergency repairs required, using our In-House Emergency Workforce. Within the limits of our resources, assistance is given to the emergency services to alleviate flooding problems by sandbagging.

There are currently 6 rain gauges, 7 river gauges and 1 snowpillow in the Cheviot and East Northumberland LEAP area. These stations provide rainfall, snowfall, and river level data via a telemetry system. Some catchments and certain reaches of larger rivers have no telemetry stations, thus preventing accuracy in forecasting.

Systems need to be in place to ensure that the Agency initiates efficient and effective responses to flood emergencies. Training of staff to use monitoring and forecasting techniques will need to be undertaken on a regular basis.

Further details on this topic can be found in Sections 4.4, 5.9 and 6.2 of Part 2.

Issue 20 Effects of Structures In or Near Rivers

Within the Cheviot and East Northumberland area there are many man-made structures built in and across river channels. These structures have an important impact on the way a river functions, such as: altering flows and gravel movements; affecting the position of areas of erosion and deposition, and the location of pools and riffles; hinder migration of fish upstream; affecting wildlife sites and recreational use of rivers. In many cases the structures may be of historical importance. This Issue links with Issue 21.

Objective

- To work with others to ensure artificial barriers do not impede the natural migration of fish or obstruct the flow in the channel giving rise to flooding, whilst maintaining the structure's landscape, historical and recreational importance.

No	Proposals/Action Needed	Reasons/Advantages
a	Undertake a programme to: • identify structures; • determine ownership; • carry out condition survey of structures, which will take account of flooding and safety risks involved; • identify legal liability for structures; • determine whether fish passage is affected; • identify health and safety implications; eg bridge safety assessments, culvert safety, public access safety.	Comprehensive information will provide: • number, location and condition of structures; • information regarding, if and how, structures impede fish passage; • information on flood defence implications; • improved management of structures which impede flow; • identify structures important for recreation.
b	Undertake improvements to structures which impede fish passage (see above) in line with the Agency's Regional Fisheries Strategy.	• Improved fish passage for migrating fish, with improved stocks from successful spawning. • Potential losses are likely to be reduced as fish will not collect in high numbers at obstructions, making them attractive targets for illegal fishing activity.
c	Work in partnership with other interested parties to fund the above and any subsequent improvements.	• Cooperation between the Agency and other bodies should assist in minimising cost of work.

Who's Involved

Environment Agency, landowners, local authorities, angling clubs, recreation groups, British Canoe Union, English Heritage.

Background

Structures within the Cheviot and East Northumberland LEAP area in, over, or under the river channel include bridges, weirs, pipelines and culverts. These structures have an impact on the surroundings in a number of ways including river flows, wildlife and habitat, fish passage, recreation, heritage and landscape. As such they must be safe, well maintained and well designed in a manner appropriate to their surroundings. Structures listed for their heritage and/or landscape value require special consents prior to any works being undertaken.

Existing and new structures can affect the free flow of a watercourse, giving rise to potential flooding causing erosion and depositional problems. Existing structures may cause an obstruction to the free passage of fish. Fish congregating below an obstruction may be subjected to environmental stresses which may make them more susceptible to diseases and illegal poaching. It is a requirement under the Salmon and Freshwater Fisheries Act 1975 that any new structures built incorporate suitable facilities to ensure fish can move freely under all flow conditions. In addition, existing structures that contain a fish pass must be maintained in proper working order by the owner.

Further details on related topics can be found in Section 5.15 in Part 2.

Issue 21 Management of River and Wetland Habitats

Rivers and wetlands are valuable environmental and landscape resources within the LEAP area. These features provide a wide variety of habitats for wildlife from upland cold water, fast-flowing streams to lowland slow-flowing wide and deep rivers, marshy wetland areas, and ponds. In addition rivers and wetlands are of fundamental importance to the local economy through tourism associated with cultural heritage, landscape, wildlife and recreation. Many organisations and private individuals are affected by and involved in their management. This issue relates to the Agency's role in the management of the Cheviot and East Northumberland area's river habitats. This issue links with Issue 20.

Objective

- To work with others to maintain and improve the river and wetland habitats.

No	Proposals/Action Needed	Reasons/Advantages
a	Continue the Agency's involvement in the Northumbrian RIVERS Project. By acting in partnership with others we hope to gain funding from the European Unions' Objective 5b fund. This would allow the project to go ahead developing the local economy and enhancing the environment.	• Investment in the region's rivers, allowing sustainable use of the available resources. • Development of partnerships between all bodies involved will improve links for future ventures.
b	Provide advice on habitat improvements with landowners and angling clubs. Help interested parties to produce fishery management plans.	• Provision of more up-to-date and accurate information for angling clubs, general public and other bodies will assist in improving the habitats within their control. • External bodies able to provide useful information for publication in mailshots.
c	Assist in minimising the spread of invasive bankside plants by: • raising awareness of the problems of Giant Hogweed, Japanese Knotweed and Himalayan Balsam with the general public; • continuing surveys for invasive bankside species by staff; • carrying out control on sites owned or managed by the Agency; • encouraging control by riparian owners and other interested parties, once priority sites for control have been established.	• Provision of detailed data on location and type of invasive plant. • Protect and improve riverbank habitats.

Who's Involved

Local authorities, Environment Agency, English Nature, National Trust, Countryside Commission, Northumberland Wildlife Trust, Northumberland National Park, angling clubs, landowners, recreation groups, British Canoe Union, Farming and Wildlife Advisory Group, MAFF, Northumbria Tourist Board, Forest Enterprise Kielder and Rothbury Districts.

Background

In the past, river corridors have often been used intensively with little knowledge or thought for the long term implications. Urbanisation has led to some straightened channels and intensive agricultural methods can lead to overgrazing, trampling and cultivation of land right up to bank edges. Through these process bankside vegetation is lost, the rivers' structure can be damaged, becoming gradually wider and shallower through increased erosion, and the natural processes and functions of the river are destroyed. The decline in habitat quality of riverbanks, and rivers themselves affect fish and wildlife populations so that diversity and abundance is dramatically reduced.

This process is not irreversible, and can be relatively quick and easy to repair to some degree. Allowing riverside vegetation to regenerate has many benefits in that it:

- allows bank structures to strengthen and a narrower, deeper channel to be restored;
- allows an increase in organic input such as leaf litter as a significant food source for invertebrates and fish;

- reduces erosion from banksides and the river bed thus reducing siltation in other parts of the system;
- provides shelter for wildlife and linkages between isolated habitats thus increasing biodiversity;
- increases landscape value of the river corridor;
- can assist in reducing diffuse pollution

The Northumbrian RIVERS Project - bid for European Union Funding

A major initiative for developing and improving Northumberland's rivers is underway as a partnership project. The lead organisation is the Farming and Wildlife Advisory Group (FWAG), and the partners are the Agency, Northumberland National Park, Northumbria Tourist Board, Tyne Riparian Owners and Occupiers Association, Forest Enterprise Kielder and Rothbury Districts. A huge amount of support has been given from all the statutory and local agencies as well as private organisations and individuals. The project aims to protect, conserve and enhance the rivers within the project area for fish and other wildlife, to allow for their sustainable exploitation for rural economic growth and development. An application to the European Union Objective 5b fund for support to allow this project to go ahead has been made.

Invasive Plants

Several alien plant species are becoming increasingly widespread principally: Himalayan balsam, Japanese knotweed, and giant hogweed. Giant Hogweed is a particular problem as it produces large amounts of seed and is also a health hazard, causing severe irritation and blistering of the skin on contact. Within the Cheviot and East Northumberland LEAP area these plants have established in various locations. Giant hogweed is found on the River Tweed and the River Wansbeck; Japanese knotweed is wide spread including on the River Aln. No accurate information is available of Himalayan balsam distribution.

Further details on this topic can be found in Sections 1.3 and 5.10, 5.11 and 5.12 of Part 2.

Issue 22 Fisheries

Fisheries in the Cheviot and East Northumberland area are important, with many organisations and individuals involved in their management. This issue relates to the Agency's role in managing fisheries of both the area's rivers and coast. Fisheries management is also linked to Issues 3, 4, 13, 14, 20 and 21. [The Agency has no responsibilities for fisheries on the Till or Tweed].

Objective

- To maintain, improve and develop freshwater fisheries in the Blyth, Wansbeck, Coquet and Aln catchments.

No	Proposals/Action Needed	Reasons/Advantages
a	To develop the River Coquet Salmon Action Plan.	Salmon stocks and their environment can be managed to optimise recruitment to freshwater fisheries, covering all aspects of fisheries on all watercourses including: • habitats; • angling; • obstructions; • stocking and survey programme.
b	Determine the need for fish counters, locate suitable sites, and examine the feasibility and resource implications of counter installation.	Fish counters would give enhanced information leading to better management of the fishery. This would be subject to availability of funding and subject to cost benefit analysis.
c	Undertake an investigation into seasonal salmon deaths on the River Coquet: • prepare bid for funding to carry out full investigation into seasonal deaths; • regular water quality monitoring; • biological investigation of dead fish to try to determine cause of death.	Determine the extent of the disease problem in terms of the percentage of salmon affected. Attempt to determine the factors causing disease and identify possible solutions.
d	Undertake annual juvenile salmonid surveys.	Surveys provide an indication of any changes and trends in juvenile populations, and can be used to target habitat improvement schemes effectively, and to assess their effects.
e	Develop a programme for investigation of coarse fish populations in appropriate areas.	Locations of coarse fish populations would be known, and improvements to the habitat and methods of increasing populations could be carried out.
f	Inform interested parties of the Agency's policy towards protected inland fish-eating birds, eg cormorants and goosanders.	The Agency will not support killing of these birds until serious damage has been established and killing proven to be the most effective management procedure.
g	Develop a programme of surveys to provide information on distribution and status of brown trout populations.	Improved knowledge regarding brown trout populations to allow targeting of habitat improvements and other methods of increasing populations to be carried out.
h	• Continue to target anti-poaching activities on specific areas. • Ensure sufficient resources are available to protect improving populations.	Minimise poaching activity.

Who's Involved

Environment Agency, angling clubs, landowners, River Coquet Improvement Association.

Background

Salmon Action Plans

Through the process of developing Salmon Action Plans, salmon stocks and the environment in which they live can be managed to optimise recruitment to freshwater fisheries. This is achieved by setting targets for spawning escapement, ie the number of fish returning to spawn. This is a major strategy which will look into all aspects of fisheries: habitats, angling, obstructions, stocking and survey programme, and will cover all watercourses. The project will look at the development of a scientific approach to salmon management on a catchment basis.

Fisheries information

In order to effectively manage fisheries, data regarding the status of fish populations are required. This enables trends to be established, and the response to environmental change can be monitored and managed. There are a variety of methods which can be utilised to achieve this:

- Fish counters are already installed on the River Coquet which provide information on the number of returning salmonids, and the timing of their return to freshwater. The provision of fish counters in other locations should be investigated to allow further information to be collected.
- Fish traps are a useful means by which data can be collected, but funds are difficult to obtain.
- Electric fishing surveys to monitor juvenile salmonid populations are undertaken annually in the catchment. These surveys will be continued to assess spawning success and to monitor changes and trends in the populations, and to allow the effective targeting of habitat improvement works.

Seasonal salmon deaths on the River Coquet

In recent years there have been salmon mortalities on the River Tyne. There has been an ongoing investigation into the causes and solutions to improve the situation. (See Tyne LEAP) Seasonal salmon deaths also occur on the River Coquet, and require further investigation. A bid to fund an investigation has been made as such a study may help to develop our understanding of the environmental impacts on the fish, so that remedial action can be developed. Currently, water quality monitoring, examination of dead fish and biological studies are undertaken in an attempt to determine possible reasons for the fish mortalities.

Fish-eating birds

There has been a great deal of publicity in recent years about protected inland fish-eating birds, cormorants and goosanders, and their effect on the fish populations. The Agency will not support killing of these birds until serious damage has been established and killing proven to be the most effective management procedure.

Further details of topics related to this issue are given in Section 5.11 in Part 2.

Issue 23 Biodiversity Action Plans

Otters, native crayfish, water voles and freshwater pearl mussels are present in the Cheviot and East Northumberland area. As part of the UK Biodiversity Action Plan the Agency has a responsibility to coordinate action to protect these species within the LEAP area. In the future other species may be added to this list, currently we are 'lead agency' for otter and pearl mussel. There are also many other species identified in the UK Biodiversity Action Plan and in order to coordinate action a Local Biodiversity Action Plan is proposed. The Agency will need to be involved in this initiative.

Objective

- To assist in or lead the development and implementation of Action Plans for those species for which the Agency is given responsibility under the UK Biodiversity Action Plan and to assist in the development and implementation of a Local Biodiversity Action Plan for Northumberland.

No	Proposals/Action Needed	Reasons/Advantages
a	Undertake survey programme on the distribution of the water vole in collaboration with Northumberland Wildlife Trust.	Will enable necessary actions to be identified to protect this endangered species and help to fulfill international agreement.
b	Undertake survey programmes on the distribution of the white- clawed crayfish and the freshwater pearl mussel.	Will enable necessary actions to be identified to protect these endangered species and help to fulfill international agreement.
c	Continue work on the conservation of the otter. Extend collaborative project with Northumberland Wildlife Trust.	Will build on the considerable work already undertaken on otter conservation. Previous work has developed a good relationship with local landowners.
d	Input into Local Biodiversity Action Plans being progressed by the local authorities and the Northumberland Wildlife Trust.	Assist in implementing the UK Biodiversity Action Plan has a whole and ensure Agency's work is coordinated with other actions.
e	Following the baseline surveys described above; local Action Plans may be required for some of these species. These will be prepared in discussion with conservation organisations.	Better decision making in undertaking or consenting works. Better targeting of resources.
f	As other species are added to the Agency's list other Action Plans may need to be incorporated.	Assist in implementing the UK Biodiversity Action Plan.

Who's Involved

Environment Agency, Northumberland Wildlife Trust, Northumberland County Council, English Nature, Northumberland National Park, farmers, landowners.

Background

The UK Biodiversity Action Plan (BAP) identifies a number of species relevant to the Cheviot and East Northumberland LEAP area which require active conservation action. In the LEAP area the Agency is the contact point or lead agency for the otter, native crayfish, freshwater pearl mussel and the water vole. An important first step in the conservation of these species will be the identification of actions based regarding good information on status. Information related to the distribution and status of otter and crayfish throughout the area is partially known, though information on population size is less comprehensive. Pearl mussel and water vole surveys undertaken in 1996 indicated that these species only occur at a limited number of sites.

It is envisaged, both nationally and locally, that many of the targets and objectives of the species action plans will be met through existing initiatives and projects, aided by better and more focused integration of activities, but some species may require fresh and specific efforts to conserve them. The Agency is committed to playing a full and proper role in the conservation of additional species or habitats listed either in the UK BAP, or in the various local BAPs where resources allow.

It is proposed to set up a Northumberland Biodiversity Action Plan Working Group to take forward the plan for Northumberland. The unique partnership, overseen by Northumberland County Council, includes local authorities, National Park, Northumberland Wildlife Trust, English Nature, Royal Society for the Protection of Birds, and the Hancock Museum Biological Records Centre.

Further details on this topic can be found in Sections 6.4 and 5.12 of Part 2.

Issue 24 Northumberland's Special Areas of Conservation and Special Protection Areas

Three sites in the Cheviot and East Northumberland area are to be designated as Special Areas of Conservation (SACs) under the European Habitats and Species Directive. These sites are Berwickshire and North Northumberland Coast, North Northumberland Dunes and Newham Fen. The Directive also applies to sites designated as Special Protection Areas (SPAs) under the Birds Directive which includes Lindisfarne, Farne Islands, Coquet Island, Holborn Lake and Moss and the Northumberland Shore (proposed). This issue relates to the Agency plans to assist in the protection of these sites (see Issue 17).

Objectives

- To ensure the favourable conservation status of these sites is maintained.
- To ensure that the Agency's duties as a relevant authority under these Directives are fulfilled.

No	Proposals/Action Needed	Reasons/Advantages
a	Ensure that the Agency, in carrying out or authorising any work affecting an SPA or SAC, maintains the site's 'favourable conservation status'. Database of sites to be set up.	Ensure the favourable conservation status of these sites is maintained.
b	Review all consents, licences and authorisations affecting proposed and designated SACs and SPAs between 1998 and 2004.	Ensure the favourable conservation status of these sites is maintained.
c	Work with English Nature and other relevant authorities on the preparation of a Scheme of Management for the marine SAC on the Northumberland Coast.	Ensure the favourable conservation status of these sites is maintained. Requirement under the Habitats Directive.
d	Agree with English Nature a joint approach to the management and consenting of works affecting these sites.	Model has been developed through the river SSSIs programme. Important to help the Agency in meeting its duties under the Directive.

Who's Involved

Environment Agency, English Nature, National Trust, Countryside Commission, Northumberland Wildlife Trust, local authorities, Northumbrian Water Limited.

Background

The European Habitats and Species Directive was enacted into UK law in 1994. The UK Government is required to identify sites of importance on a European scale by 1998. These sites will be known as Special Areas of Conservation (SACs) and are generally already designated as Sites of Special Scientific Interest (SSSIs). The Directive also applies to sites designated as Special Protection Areas (SPAs) under the Birds Directive. The Agency was identified under the Regulations as both a 'relevant' and a 'competent' authority. This requires the Agency to ensure that in carrying out or authorising any work affecting an SPA or SAC that the site's 'favourable conservation status' is maintained. In addition, between 1998 and 2004 the Agency is required to review all consents affecting these sites to assess impacts on species or features which have been identified as being of special importance.

Further details on this and related topics can be found in Section 5.12 of Part 2.

Issue 25 Water-Based Recreation

Water-based recreation takes place in many areas of the Cheviot and East Northumberland LEAP area. The Agency has a duty to promote the use of water and land associated with water for recreation. However we do not own any land in the LEAP area on which to do this. To fulfill our duty it is therefore necessary to liaise closely with local authorities, land owners and other interested parties so that we can work together on joint projects to promote water-based recreation where appropriate. A particular issue is increasing demand for all forms of water-based recreation along the Northumberland coast.

Objective

- To work with others to promote the use of water and land associated with water for recreation.

No	Proposals/Action Needed	Reasons/Advantages
a	Liaise with local authorities, land owners, and other providers of recreation sites/ facilities.	• Ensure recreational activities and developments are environmentally sustainable. • Assists in advising providers about the strategic importance of facilities and co-ordinate new developments to give all potential providers across the LEAP area best value for money, whilst realising optimum potential for watersports and other recreational activity. • Assists in learning what providers regard as high priority work or major projects and whether any of these meet the criteria of the Agency's own priority list for jointly funding projects. • Investigate the potential of jointly producing or contributing to education and interpretation materials such as leaflets and boards, to promote good practice to recreational users and better understanding of the environment.
b	Liaise with recreation users' representatives at all levels.	• Achieve greater understanding of the needs of all users regardless of their physical ability or level of technical expertise. • Learn what conditions users regard as essential for allowing their sport or other recreational activity to continue or to develop in future. • Advise users representatives about potential partnership organisations and sources of funding for future developments. • Offer the services of the Agency to act as an 'honest broker' to try and amicably resolve disputes between different user groups, or to represent the views of user groups to key providers where appropriate.
c	Develop a strategy to allow the optimum use of the Northumberland Coast for water based recreation in a sustainable way (see Issue 17). This strategy will identify: • specific sites which require protection from over use or inappropriate watersports activity; • all sites and facilities used by water sports participants and review current management practices; • sites with potential for water based recreation following environmental improvement.	Allow a coordinated approach to the management of water based recreation on the coast with the agreement of all parties. The strategy will promote the: • protection of vulnerable sites from damage; • optimum use existing sites; • reduction of pressure on sensitive sites by promoting the creation more robust sites for recreation.

Who's Involved

Environment Agency, Northumberland County Council, English Nature, Countryside Commission, National Trust, the Northumberland Wildlife Trust, RSPB, British Canoe Union, landowners, recreation groups and other interested parties.

Background

The demand for all forms of water-based recreation is increasing. The first two proposals above reflect the need for the Agency to work with providers and users to promote the sustainable use of water for recreation.

Northumberland Coast Recreation Strategy

There is a increasing demand for water based recreation on the Northumberland coast. Some sites will not be able to sustain increased use without being damaged. Other sites along the Northumberland coast are not used to their full potential and could sustain higher recreational use. The Agency in partnership with the Northumberland Coast Project (see Issue 17) are producing a strategy to manage recreational activity.

Further details on the above topics can be found in Sections 5.13 of Part 2.

Issue 26 Environmental Awareness and Education

This issue looks at how the Agency could work with schools, other educational establishments and organisations in the Cheviot and East Northumberland area to develop in young people an understanding of, and encourage a caring attitude for, the environment.

Objective

- To generate environmental awareness in young people and an understanding of how they can help to improve the environment for future generations.

No	Proposals/Action Needed	Reasons/Advantages
a	Work with others to target: • school children; • further and higher education groups; • youth groups, clubs and organisations; to encourage involvement in protecting the environment.	Effective use of resources by cooperating on educational projects.
b	Investigate the production of localised educational materials to assist teachers with environmental education (see Issue 1 re 'Earth Balance').	Provide teachers with local environmental education material.
c	Discuss with other organisations and businesses possibilities of cooperating on environmental education projects.	Effective use of resources by cooperating on educational projects.
d	Discuss with local universities and colleges ways to improve curriculum and course contents to generate environmental awareness and responsibility. This should include all relevant courses not only environmental courses.	Ensure environmental issues are covered in relevant university and college courses. For example engineering, architecture, business schools etc.

Who's Involved

Schools, colleges and universities, Environment Agency, local authorities, other agencies and businesses.

Background

Education is key to developing a more environmentally aware and responsible society. Education campaigns for various sectors of society have featured in many of the issues outlined in this report. Better environmental awareness in today's industries, businesses, farms, and households can help in protecting and improving the Cheviot and East Northumberland environment now. However, in the longer term it is the next generation of decision-makers who will be able to contribute more to the achievement of sustainable development. The Agency must therefore, work closely with local educational professionals to generate environmental awareness in young people and understanding of how they can help to improve the local environment for future generations.

Part 2

Part 2 describes the Cheviot and East Northumberland area, identifies uses and activities which are prevalent within the area and seeks to measure the environmental quality of the area against identified standards (where available). It provides the background information to support Part 1.

4 Overview of the Cheviot and East Northumberland Area

4.1 Geology

The solid geology of the Cheviot and East Northumberland area consists of igneous and sedimentary rocks, with the oldest strata to the north-west and progressively younger strata to the south-east. Much of the area is overlaid by superficial glacial deposits. Map 2 shows the geology of the LEAP area.

North Northumberland is dominated to the west by the igneous complex of the Cheviot Hills with Carboniferous rocks: Cementstones, Fell Sandstone, Scremerston Coal Group and Carboniferous Limestones to the east. The solid geology has been greatly modified by the Ice Age with meltwater over-deepening rivers, eg the gorge of the River Till, and depositing areas of thick, laminated clay, sand and gravels, which are now commercially exploited. In the west, drift deposits are dominated by upland peat bogs. The resistant dolerite sill which was intruded into the Carboniferous Limestone Series, locally known as the Whin Sill, outcrops as an escarpment throughout Northumberland. It is this hard, resistant rock which produces the Farne Islands and affords both Bamburgh and Dunstanburgh Castles their natural fortifications.

Further south the strata is of Silurian to Upper Carboniferous age. The Silurian strata includes shales and greywackes, intruded into these is the igneous complex of the Cheviot Hills. A particular igneous rock (micro-porphyrite) of the Cheviot complex has been quarried for its red stone and used locally and nationally as a road stone. The Carboniferous rocks to the south east are largely composed of interbedded sandstones and shales, with limestone and occasional thin coals. Drift cover was deposited during the Ice Age and is generally glacial till which extends from Rothbury to the coast. To the west of the LEAP area, drift deposits and soils are dominated by upland peat bogs.

To the south of the LEAP area the solid geology consists mostly of strata from the Carboniferous age. The oldest rocks outcrop to the west, these being Fell Sandstone and Lower Carboniferous Limestones, sandstones, shales and thin coals. The Millstone Grit and Upper Limestone form a sequence with two distinct types: first there are limestones, shales and thin sandstones; a second is characterised by thick coarse-grained cross-bedded sandstones together with fine-grained sandstones, siltstones and mudstones.

The western edge of the Lower Coal Measures' outcrop extends in a line from Amble in the north to the vicinity of Barnard Castle in the south. The measures dip generally eastwards to the coast, and continue under the North Sea, to a distance of 7.5km offshore. This area of the Northumberland and Durham Coalfield, being of prime importance to the economic growth of the area, and has been worked extensively by deep mines and subsequently by opencast methods. In the east, quartz dolerite dykes have intruded into the Coal Measures. These are part of the Whin Sill which has intruded into the Carboniferous Limestone Group. Much of this area is covered by superficial or drift deposits which consist mainly of glacial boulder clays and laminated clays, however glacial sand and gravel is also present, around Felton and in the Wansbeck valley.

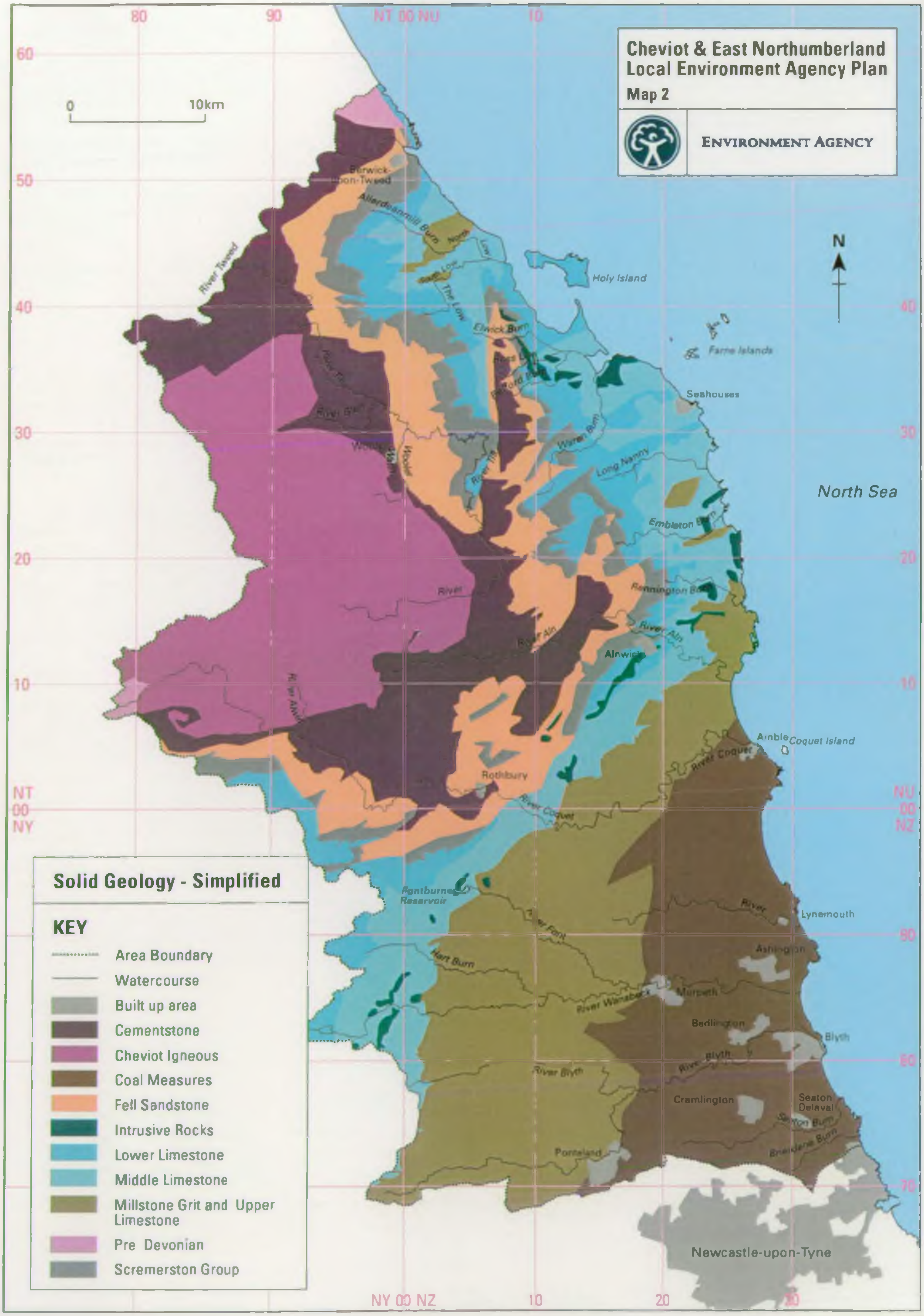
4.2 Hydrogeology

Aquifers are geological strata which contain groundwater in exploitable quantities. The study of hydrogeology is concerned with the way in which groundwater flows through or is stored in aquifers and the physical and chemical changes resulting from this and its interaction with the parent rock.

Major aquifers are highly permeable rock formations, generally fractured, and capable of supporting large abstractions. The major aquifer in Northumberland is the Fell Sandstone. This outcrops at Berwick upon Tweed and follows a line south towards Rothbury then outcrops in a westerly line. Due to its steep topography, fractured and faulted nature, it releases groundwater stored within it in the form of springs and is capable of supporting large abstractions.

Minor aquifers seldom produce large quantities of water but can be important for local supplies. The Middle Limestone, Upper Limestone and Millstone Grit all form minor aquifers. The thicker limestones and sandstones source numerous springs where the strata outcrop. The springs are widely used for rural private water supply, as are small boreholes where springs are less common.

The sandstones of the Coal Measures are capable of storing and transmitting appreciable volumes of water. Water levels have, however, been severely affected by the dewatering associated with previous deep coal mining. Groundwater quality in parts of the Coal Measures is poor with the water often being acidic and highly mineralised. Most deep coal mining in the LEAP area ceased some years ago and minewater pumping has stopped. The coal workings are filling and British Coal has predicted possible overflows to the Blyth Estuary. Groundwater is pumped at Hauxley and Ellington/Lynemouth to dewater the opencast sites, and at Ellington Colliery to allow the extraction of coal in dry conditions.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 2
ENVIRONMENT AGENCY
Solid Geology - Simplified
KEY
Area Boundary
Watercourse
Built up area
Cementstone
Cheviot Igneous
Coal Measures
Fell Sandstone
Intrusive Rocks
Lower Limestone
Middle Limestone
Millstone Grit and Upper Limestone
Pre Devonian
Scremerston Group
0
10km
N
North Sea
Holy Island
Farne Islands
Seahouses
Berwick-upon-Tweed
River Tweed
Elwick Burn
Long Nanny
Embleton Burn
River Aln
Alnwick
Rothbury
River Coquet
Amble
Coquet Island
Fontburn Reservoir
Hart Burn
River Wansbeck
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
River Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
NT 00 NU
NY 00 NZ
80
90
10
20
60
50
40
30
70

4.3 Topography

The topography of the Cheviot and East Northumberland LEAP area (see Map 3) ranges from the uplands of the west through fringing scarp and lowland to the dune and cliff coast. The upland areas are extensive with a substantial proportion over 300 metres. The area's watercourses respond rapidly to rainfall/snowmelt because of relatively steep gradients.

4.4 Climate

Annual rainfall is closely related to both altitude and prevailing wind direction. In the UK, the prevailing wind is from the west, hence the eastern half of the country lies in the rain shadow of the central uplands and is traditionally drier than the west (see Map 4). This is true of Northumberland, with a wide range in annual rainfall totals between the Cheviot Hills and the coastal plain. In the uplands, annual rainfall can average 1100mm and is mainly the result of frontal systems approaching from the west. The coastal lowlands can average as low as 600mm per year, often as a result of north-easterly airstreams from the North Sea. The central belt between these two areas will generally average 700-800mm per year.

Evapotranspiration is the process by which water is lost to the atmosphere, both through evaporation directly from the earth's surface and through transpiration losses by plants. It is closely linked to temperature, increasing as the temperature rises. In the coastal area, annual evapotranspiration losses may be as high as 450mm, whereas in the colder upland area of the Cheviots, this could be less than 400mm.

The difference between rainfall and evapotranspiration gives the effective rainfall available for generating river flow and recharging groundwater.

4.5 Key Details

Area:	2,863 km^2
Estimated Population:	205,000

Main Centres of Population (1991 census): (see Map 5)

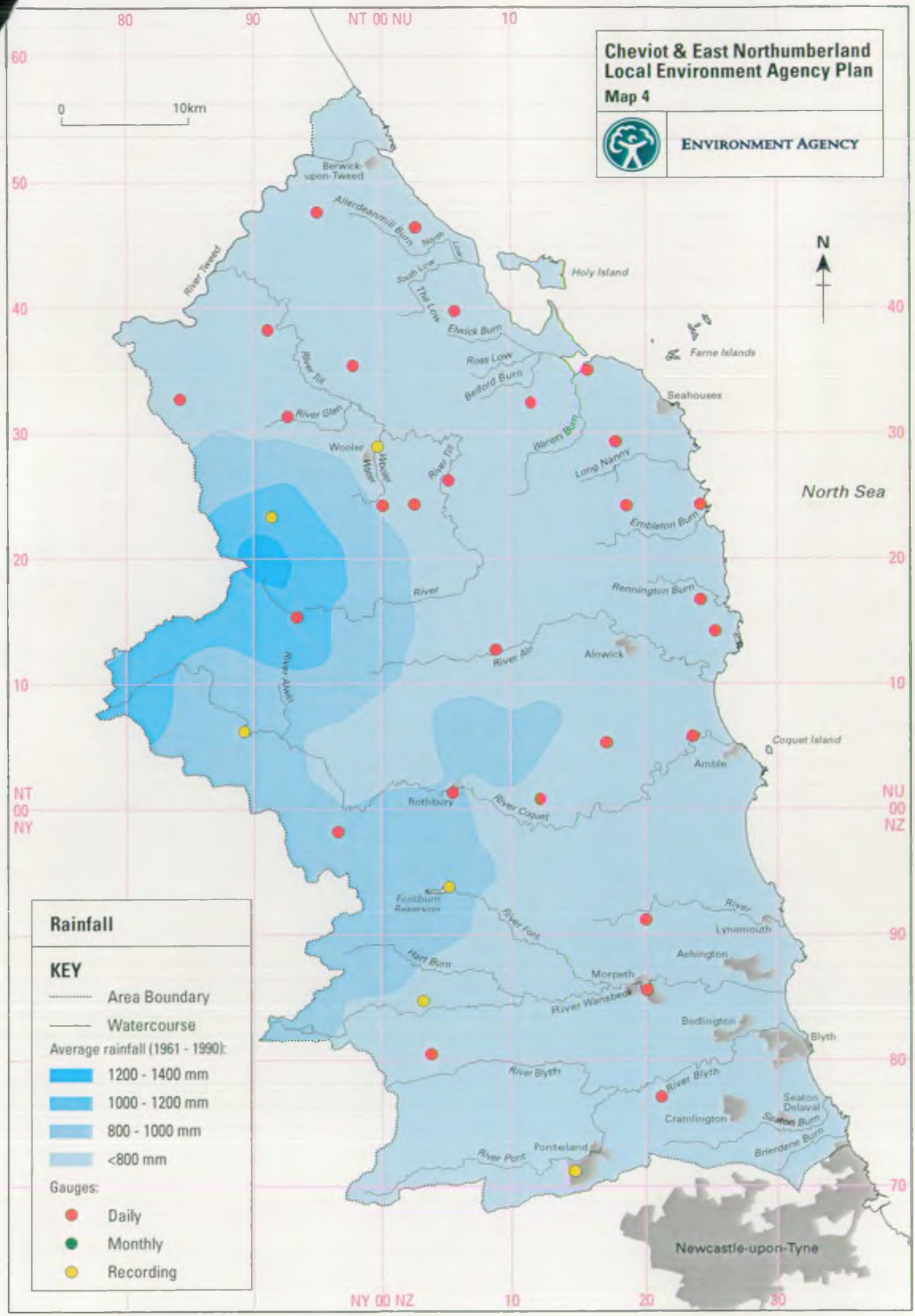
Blyth	35,000	Cramlington	29,100
Ashington	27,900	Bedlington	15,400
Morpeth	14,300	Berwick	13,500
Ponteland	11,200	Alnwick	7,400
Newbiggin	7,100	Seaton Delaval	3,800
Amble	5,600	Rothbury	2,100
Wooler	2,000		

Local Authorities:

Alnwick District Council
Berwick upon Tweed Borough Council
Blyth Valley Borough Council
Castle Morpeth Borough Council
City of Newcastle upon Tyne Council
North Tyneside Metropolitan Borough Council
Northumberland County Council
Northumberland National Park.
Wansbeck District Council

Length of Main River:	493.04km
Length of flood defence on Main River: (see Map 14)	Tidal: 7.94km Fluvial: 91.31km
Length of Coast (approximately):	110km (from Scottish border to Whitley Bay)
Sites of Special Scientific Interest:	73 (see Map 17)
Candidate Special Areas of Conservation:	Berwickshire and North Northumberland Coast North Northumberland Dunes Newham Fen
Scheduled Ancient Monuments:	104 (see Map 21)
Ramsar Sites:	Lindisfarne Holborn Moss


Cheviot & East Northumberland
Local Environment Agency Plan
Map 3
Environment Agency
0
10km
N
Simplified Topography
KEY
Area Boundary
Watercourse
Built up area
Relief (feet):
>2000
1000 - 2000
400 - 1000
200 - 400
<200
Berwick upon-Tweed
River Tweed
Holy Island
Farne Islands
Seahouses
Wooler
River Till
River Glen
Ellick Burn
Rose Low
Belford Burn
Warren Burn
Long Nanny
North Sea
Embleton Burn
Rennington Burn
River Aln
Alnwick
Coquet Island
Amble
Rothbury
River Coquet
Fontburn Reservoir
River Font
River Lyne
Lynemouth
Ashington
Hart Burn
Morpeth
Bedlington
Blyth
River Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
NT 00 NU
NY 00 NZ
80
90
10
20
30
40
50
60
70


Cheviot & East Northumberland
Local Environment Agency Plan
Map 4
ENVIRONMENT AGENCY
0
10km
N
80
90
NT 00 NU
10
60
50
40
30
20
10
NT
00
NY
40
30
20
10
NU
00
NZ
90
80
70
60
NY 00 NZ
10
20
30
Berwick-upon-Tweed
Allerdeanmill Burn
River Tweed
North Low
South Low
The Low
Holy Island
Elwick Burn
Ross Low
Bedford Burn
Farne Islands
Seahouses
River Till
River Glen
Wooler
Wooler Water
Warren Burn
Long Nanny
North Sea
Embleton Burn
Rennington Burn
River Aln
Alnwick
Coquet Island
Amble
Rothbury
River Coquet
Fontburn Reservoir
River Font
River
Lynemouth
Ashington
Hart Burn
Morpeth
River Wansbeck
Bedlington
Blyth
River Blyth
Cramlington
Seaton Delaval
Seaton Burn
Ponteland
River Pont
Brierdene Burn
Newcastle-upon-Tyne
Rainfall
KEY
Area Boundary
Watercourse
Average rainfall (1961 - 1990):
1200 - 1400 mm
1000 - 1200 mm
800 - 1000 mm
<800 mm
Gauges:
Daily
Monthly
Recording

Special Protection Areas:	Lindisfarne Farnes and Coquet Island Holborn Lake and Moss (Proposed) Northumberland Shore
National Nature Reserve:	Farne Islands Lindisfarne Holborn Lake and Moss Newham Fen
Sensitive Marine Areas:	Holy Island and the Farnes Berwick south to Craster
Voluntary Marine Reserve:	St Mary's Island
Landscape designated areas:	Northumberland National Park
Area of Outstanding Natural Beauty:	Northumberland Coast (Berwick upon Tweed-Alnmouth Bay)
Heritage Coast:	Northumberland Heritage Coast

Fisheries:

Length of water designated under EC Directive Freshwater Fisheries (78/659EEC):

Salmonid:	413.3km
Cyprinid:	None
Still waters:	A number of still waters have been identified as fisheries, however they are not assessed for compliance.
Shell Fishery:	Ross Links. This site is designated under the EC Shellfish Waters Directive.

Waste Management: (see Maps 11, 12, 13)

Landfill Sites:	19
Metal Recycling Sites:	2
Motor Vehicle Dismantlers:	12
Transfer Stations/Special Waste Storage:	13
Civic Amenity Sites:	10
Composting:	1
Tyre Storage:	1

IPC Sites: (see Map 7) 8:

Electricity generation	2
Chemical/pharmaceutical	5
Aluminium smelting	1

RAS Sites: 29

Abstraction Licences: 104

Total Number of Discharge Consents:

		Total	>250
Sewage Treatment Works	Northumbrian Water Limited	98	38
	Private	656	10
Sewage Pumping Stations		110	0
Industrial Effluent Discharges		95	0

River Flow Data:

Gauging Station	River	Dry Weather Flow (Q95) (m^3/sec)	Mean Flow (m^3/sec)	Mean Annual Flood (m^3/sec)
Etal (closed)	Till	1.434	8.47	86.7
Kirknewton	Glen	0.354	2.80	45.8
Hawkhill (closed)	Aln	0.459	2.41	67.3
Rothbury	Coquet	0.791	5.57	119.7
Morwick	Coquet	1.227	8.32	144.4
Shillmoor	Usway Burn	0.086	0.55	17.4
Clennel (closed)	Alwin	0.077	0.56	14.0
Bygate (closed	Coquet	0.200	1.20	25.5
Mitford	Wansbeck	0.212	3.16	122.6
Hartford Bridge	Blyth	0.115	2.04	64.7

5 Uses, Activities and Pressures

5.1 Housing

General

Existing housing, new development or redevelopment of land for domestic purposes can have a significant impact on the environment: water supply; sewage effluent; waste disposal; energy usage; flood defence; landscape; ecology can all be affected (see Figure 2).

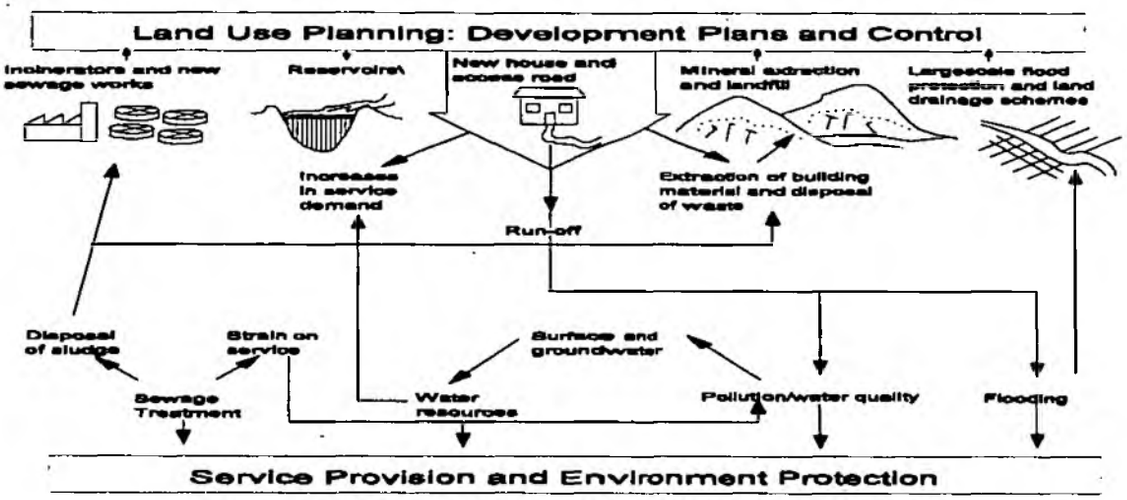


Figure 2 Diagram of the Interactions between Land Use and the Environment

The majority of developments are controlled through Development Plans, published by local planning authorities under Town and Country Planning legislation. These strategic plans take the form of County Structure Plans, District Wide Local Plans and Unitary Development Plans, which set the context for development in land use, planning and transportation. They identify areas for future residential, commercial and industrial development, and set out the policies against which planning authorities consider development proposals and land uses. The Agency is a statutory consultee for these plans. The Development Plans are prepared in accordance with the Regional Planning Guidance.

Regional Planning Guidance

There are currently two Regional Planning Guidance Notes for the North East - one for Tyne and Wear and one for the rest of the region. They were issued by the DoE after consultation with the Local Planning Authorities and the Agency and they set out the following broad objectives:

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

These RPG Notes are currently under review with the aim of producing single RPG for the north east. The Agency is involved in the review process.

Role of the Environment Agency

Government planning guidance highlights the importance of communication between Local Planning Authorities and the Agency and the relationship between land use and environmental matters.

We work to protect the environment from the harmful effects of development and to minimise flood risk. There are two main ways we can influence development:

- Through the ***planning*** system we can assist Local Planning Authorities to allocate land for development by commenting on local plans, identifying constraints and highlighting how the environment can be enhanced by sympathetic development. We will continue to advise on


Cheviot & East Northumberland
Local Environment Agency Plan
Map 5
Environment Agency
Population Density and
New Housing Allocation
KEY
Area Boundary
Watercourse
Built up area
Population per hectare:
11.1 - 23.9
1.2 - 11.1
0.3 - 1.2
0 - 0.3
Allocation of New Dwellings per District:
10000 - 15000
5000 - 10000
<5000
0
10km
N
North Sea
NT 00 NU
NY 00 NZ
80
90
10
20
30
60
50
40
70
NT
00
NY
NU
00
NZ
Berwick-upon-Tweed
Allerdeanmill Burn
River Tweed
Holy Island
Elwick Burn
Farne Islands
BERWICK-UPON-TWEED
BOROUGH
Ross Low
Belford Burn
River Till
River Glen
Seahouses
Wooler
Wooler Water
Waren Burn
Long Nanny
Embleton Burn
River
Rennington Burn
River Aln
Alnwick
River Aln
ALNWICK DISTRICT
Coquet Island
River Coquet
Amble
Rothbury
River Coquet
Fontburn Reservoir
River Font
Lynemouth
Hart Burn
Ashington
WANSBECK
DISTRICT
Morpeth
River Wansbeck
TYNEDALE
DISTRICT
Bedlington
Blyth
CASTLE MORPETH BOROUGH
River Blyth
BLYTH VALLEY
BOROUGH
Cramlington
Seaton Delaval
Seaton Burn
Ponteland
Newcastle-upon-Tyne

water and waste and air-quality related issues in our comments on Structure and District-wide Local Plans.

- We can advise Local Planning Authorities on the ***control*** of development by offering formal and informal comments to planning authorities on planning applications and development guides.

We consider individual development proposals in relation to the approved development plan, the final decision on planning matters rests with the planning authority. However, if the development:

- includes proposals for abstraction or impoundment of water or a discharge to water;
- entails work on or near a watercourse;
- is within 250 metres of a landfill site;
- introduces fish;
- is within 500 metres of a process subject to integrated pollution control;

then the Agency should be consulted to assess the appropriate consents or licences.

Local Perspective

Most of the population and therefore, housing is located in the south east of the county (See Map 5). The Local Planning Authorities have issued their strategies in the local plans stating that they seek to make land available for the development of approximately 15,000 dwellings in the LEAP area during the period 1991-2006. Details of the local plans are given below.

Local Authority	**Plan Status**
Alnwick District Council	Local Plan - Adopted May 1997
Berwick upon Tweed Borough Council	Local Plan - Inquiry Nov 1996 Inspector's report received Feb 1997
Blyth Valley Borough Council	Local Plan - Deposit Draft May 1996 Inquiry April 1997
Castle Morpeth Borough Council	Local Plan - Deposit Draft Aug 1994 Inquiry expected spring 1998
City of Newcastle upon Tyne Council	Unitary Development Plan - Deposit Draft Summer 1993 Deposit anticipated Summer 1997
North Tyneside Metropolitan Borough Council	Unitary Development Plan - Deposit Draft Dec 1996 Inquiry due beginning 1998
Northumberland County Council	County Structure Plan - Adopted May 1996
Northumberland National Park (from April 1997 is a planning authority independent of Northumberland County Council)	Adopted Sept 1996
Tynedale District Council	Local Plan - Deposit Draft Sept 1996 Inquiry due beginning 1998
Wansbeck District Council	Local Plan - Adopted April 1994

Table 1 Details of Development Plans

Future developments are likely to be concentrated near present towns and villages. These developments may influence the environment in a number of ways; care must therefore be taken in their planning and construction to minimise any adverse effects. The Agency has a full and active dialogue with all the Local Planning Authorities, at all levels of development control, from making comments on individual applications to providing policy inputs to Structure and Local Plans. We participate in the planning process to protect the public and the environment from any adverse effects associated with development and will, therefore, oppose any specific development which conflicts with this purpose. Furthermore, we will encourage Local Planning Authorities to adopt policies for protecting both the public and the environment. This issue is dealt with in Part 1 of the report in Issue 1.

5.2 Transport

General

Transportation is an integral part of our everyday lives. There are many modes of transport and the impact on the environment varies, the most significant being that of motorised transport. This impact has been accelerated by the increased number of vehicles since the 1960s.

There are three aspects of environmental impact from transport:

- exhaust emissions from burning fossil fuels: transport contributes to approximately 20% of Britain's total carbon dioxide emissions, most of which comes from road transport;
- noise pollution from the movement of traffic;
- construction of the infrastructure, ie roads, rail lines and airports.

The Agency is consulted by local authorities when road schemes are planned, to evaluate and make proposals on environmental impacts. Although we do not have direct control of transport, the effects of transport affect our duties as:

- large areas of impermeable surface on road schemes which drain to a single point, discharging into either a watercourse or to soakaways, may pose increased flood and pollution risks;
- pollution can occur as a result of accidental spillage or as a result of the cumulative effects of tyre and brake wear, vehicular emissions and the use of de-icing materials.

Local Perspective

The principal transport routes in the LEAP area are shown on Map 6.

The A1 upgrade to dual carriageway north of Morpeth is currently on hold. Should the scheme go ahead, we would be involved in the planning stage in evaluating the possible environmental impacts and make proposals on matters such as surface water run-off, drainage, and effects on wildlife corridors.

The main East Coast rail line runs south to north through the LEAP area, and provides an important link to London and other major cities.

Newcastle International Airport lies within the Tyne LEAP area, however, the car park extension to the airport lies within the Cheviot and East Northumberland area. Where there are large paved areas, such as car parks, surface water run-off problems can occur and we would be involved in the planning stage of any such works, for issuing consents and giving advice.

This topic relates to Issue 1.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 6
Environment Agency
0
10km
N
Berwick upon Tweed
Holy Island
Farne Islands
Seahouses
North Sea
Wooler
Alnwick
Amble
Coquet Island
Rothbury
Fontburn Reservoir
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
River Till
River Glen
River Aln
River Coquet
River Font
River Wansbeck
River Blyth
River Lyne
Hart Burn
Seaton Burn
Elwick Burn
Ross Low
Belford Burn
Long Nanny
Embleton Burn
Newton Burn
Major Transport Routes
KEY
Area Boundary
Watercourse
Built up area
Motorway
Primary Road
A Road
Railway

5.3 Industry

General

The Agency's responsibilities include the regulation of large and complex prescribed industrial processes and the regulation of the storage, use and disposal of radioactive substances.

Controlled Industrial Processes

The Agency is responsible for regulating the most complex and potentially polluting industrial processes. In order that we can carry out our regulatory duties, we use a system known as Integrated Pollution Control (IPC). This system requires the use of best available techniques not entailing excessive cost (BATNEEC) to prevent the release of particular substances into the environment or, where this is not practicable, to minimise their release and render them harmless.

Two lists of processes have been prescribed by regulation for control:

- Part A processes are controlled under IPC by the Agency. These are potentially the most polluting industrial processes, including large combustion plant, iron and steel manufacturing, the chemical industry, solvent recovery, and incineration plants. These processes are issued with authorisations, which incorporate built-in improvement programmes.

- Part B processes are controlled by the local authorities under a system of Local Authority Air Pollution Control. These processes are only controlled for their releases to air, and include paint spraying, small foundries, and small combustion plant. Local authorities also deal with a wide range of other forms of pollution such as odours, smoke from outdoor burning and noise pollution under Statutory Nuisance regulations.

Radioactive Substances

Hospitals, research centres and manufacturing sites that use and dispose of radioactive materials are issued with a certificate of registration and/or authorisation from the Agency under the Radioactive Substances Act 1993. The Agency applies a criterion that radioactive releases to air, water and land shall be as low as reasonably possible and ensures that the best practicable means are implemented to achieve this. Before an application can be granted, the applicant must justify the use of radioactive material and prove that no other technology can be applied.

Local Perspective

Industry within the LEAP area is located mainly to the south east. The two major factors which have influenced development in the south east are firstly, the Northumberland coalfield and secondly, its location on the outer fringes of the Newcastle conurbation.

The tidal estuary of Blyth was developed as a port for the export of locally produced coal in the nineteenth century and has subsequently diversified into other industrial uses.

Within the last 30-40 years, many industrial sites have been developed. During the 1960s, Cramlington New Town was developed which included the development of several industrial estates attracting industry to Northumberland. There are good rail and road links and it is close to the Tyneside conurbation.

Industrial estates and business parks have been developed at several locations within the LEAP area, usually in the vicinity of principal towns for ease of transport and employment. Many modern industries are less polluting, although the production of pharmaceutical may have an impact.

Major industrial processes (known as Part A Processes) in the LEAP area are (see Map 7):

- Blyth Power Station (coal-fired)
- Alcan Power Station (coal-fired)
- Alcan Aluminium Smelter
- Knoll (Pharmaceutical)
- Robinson Brothers (Chemicals)
- Searle (Pharmaceutical)
- Synpac (Pharmaceutical)
- Union Camp Chemicals (Chemicals)

This topic relates to Issue 13.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 7
Environment Agency
0
10km
N
Berwick upon Tweed
River Tweed
Allerdeanmill Burn
North Low
South Low
The Low
Elwick Burn
Ross Low
Belford Burn
River Till
River Glen
Wooler
Hawick Burn
Holy Island
Farne Islands
Seahouses
Warren Burn
Long Nanny
North Sea
Embleton Burn
River
Rennington Burn
River Aln
River Aln
Alnwick
River Aln
Coquet Island
River Coquet
Amble
Rothbury
River Coquet
Fontburn Reservoir
River Font
River
Lynemouth
Hart Burn
Ashington
Morpeth
River Wansbeck
Bedlington
Blyth
River Blyth
River Blyth
Cramlington
Seaton Delaval
Briardene Burn
Ponteland
Newcastle-upon-Tyne
NT 00 NU
NY 00 NZ
Major Industry
Part A Processes
KEY
Area Boundary
Watercourse
Built up area
Integrated Pollution Control Authorisations:
1. Alcan Smelting and Power U.K.
2. Blyth Power Station
3. Synpac Pharmaceuticals Ltd.
4. Union Camp Chemicals Ltd.
5. Robinson Brothers Ltd.
6. Searle
7. Alchema Ltd
8. Knoll Pharmaceuticals
9. Chirex Ltd.
Radioactive Substances Registrations:
1. Sanofi Winthrop Ltd.
2. Cheviot and Wansbeck NHS Trust

5.4 Contaminated Land

General

Contaminated land arises largely as a result of past industrial processes which have left behind a legacy of many substances including: oils and tars; 'heavy metals'; organic compounds; soluble salts. Such land is mostly situated in urban areas but the widespread mining of minerals and metals has resulted in many rural areas also being affected. Not all contaminated land is the result of historical pollution and may be caused by present day industrial processes.

The management of contaminated land is a twofold process, ie:

- remedial works for land already contaminated;
- implementation of correct management and standards which will minimise future contamination.

At present the main controls regarding the identification and remediation of contaminated land are through the planning process and the building control system. Where pollution is occurring the Agency has powers under the Water Resources Act 1991 to require the polluter to take remedial action.

The Environment Act 1995 contains the framework for a new contaminated land regime. For the first time in UK law there will be a specific definition of contaminated land and a specific procedure for securing remediation. However, the contaminated land provisions of the Act will not come into force until regulations have been made and official guidance has been published. The guidance will contain an explanation of a number of key terms contained within the Act and guidance on the identification of contaminated land, its remediation, apportioning liability and for information appeals procedure.

The new regime will be based on the 'suitable for use' approach. It will take into account the actual or intended use of the site and will apply where it poses an unacceptable risk to health or the environment. It is the intention that, wherever possible, land contamination will be dealt with on a voluntary basis, or in conjunction with new development, rather than by imposing remediation notices. The implementation of the new regime will mostly be the responsibility of the local authorities but the Agency will be the 'lead authority' for sites which represent a particularly serious threat to the environment, including certain closed landfills which will be designated as 'special sites. This definition of 'special sites' will be given in the guidance. We will develop our role as a consultee with the local authorities on technical details and where there is local expertise.

Local Perspective

Historically industrial development was located to the south east of the LEAP area, in the Northumberland coalfield. Contamination of land is therefore more likely to occur in this area. The precise nature and full extent of contaminated land is not known, since contamination is sometimes only realised when sites are redeveloped or when pollution actually occurs.

Battleship Wharf in Blyth Harbour is a known contaminated site resulting from ship-breaking activities, which commenced in 1911. High levels of polychlorinated biphenyls (PCBs) and heavy metals have been identified both on the land and in the sediments within the estuary. Remedial works, costing up to £2 million, funded by the Blyth Harbour Commission, English Partnerships and European Grant Aid, commenced in 1995.

The guidance for contaminated land to accompany the Environment Act 1995 had not been issued at the time of going to press, so few details are available on how such sites will be identified and remedial works carried out.

This topic relates to Issue 7.

5.5 Mineral Extraction and Mining

General

Mining and mineral extraction activities have an impact upon the environment, both in terms of quality and quantity of ground and surface water following disturbance of aquifers, interception of watercourses, pumped discharges and changes to run-off.

Extraction may result in damage to areas of high conservation value, however there is considerable scope in the restoration phase of some sites for the creation of valuable wildlife habitats and for recreational use.

The Agency is a statutory consultee in the planning process under the Town and Country Planning Act 1990 (see Section 5.1 and Issue 1) and also controls discharges from working mines and quarries under the Water Resources Act 1991. Discharges from mines abandoned before the year 2000 are specifically exempted from this control.

Minewaters discharging from coal mines can cause significant pollution problems, eg may be acidic and produce deposits such as iron hydroxide and zinc. Gravity-fed discharges can occur form abandoned mines, those that have closed more recently tend to have the water pumped to the surface which maintains levels and minimises contamination. If the pumping is stopped the water will either flow into a neighbouring mine system or overflow at some point on the surface.

The Agency does not currently control solid wastes arising from mine and quarrying operations. These wastes are subject to the requirements of the Mines and Quarries Act 1954 and the Mines and Quarries (Tips) Act 1969.

Offshore mineral developments are controlled by the Department of Trade and Industry in consultation with other govemment departments.

Local Perspective

Northumberland is rich in mineral deposits, the exploitation of which has played an important role in the local economy. The LEAP area is a major producer of coal, rock, sand and gravel. However, mineral extraction has had a significant effect on the environment. The decline in deep coal mining has been accompanied by an increase in opencast mining.

Coal measures outcrop along the coast from Amble in the north to South Shields. Coal workings extend considerable distances eastward beneath the sea bed.

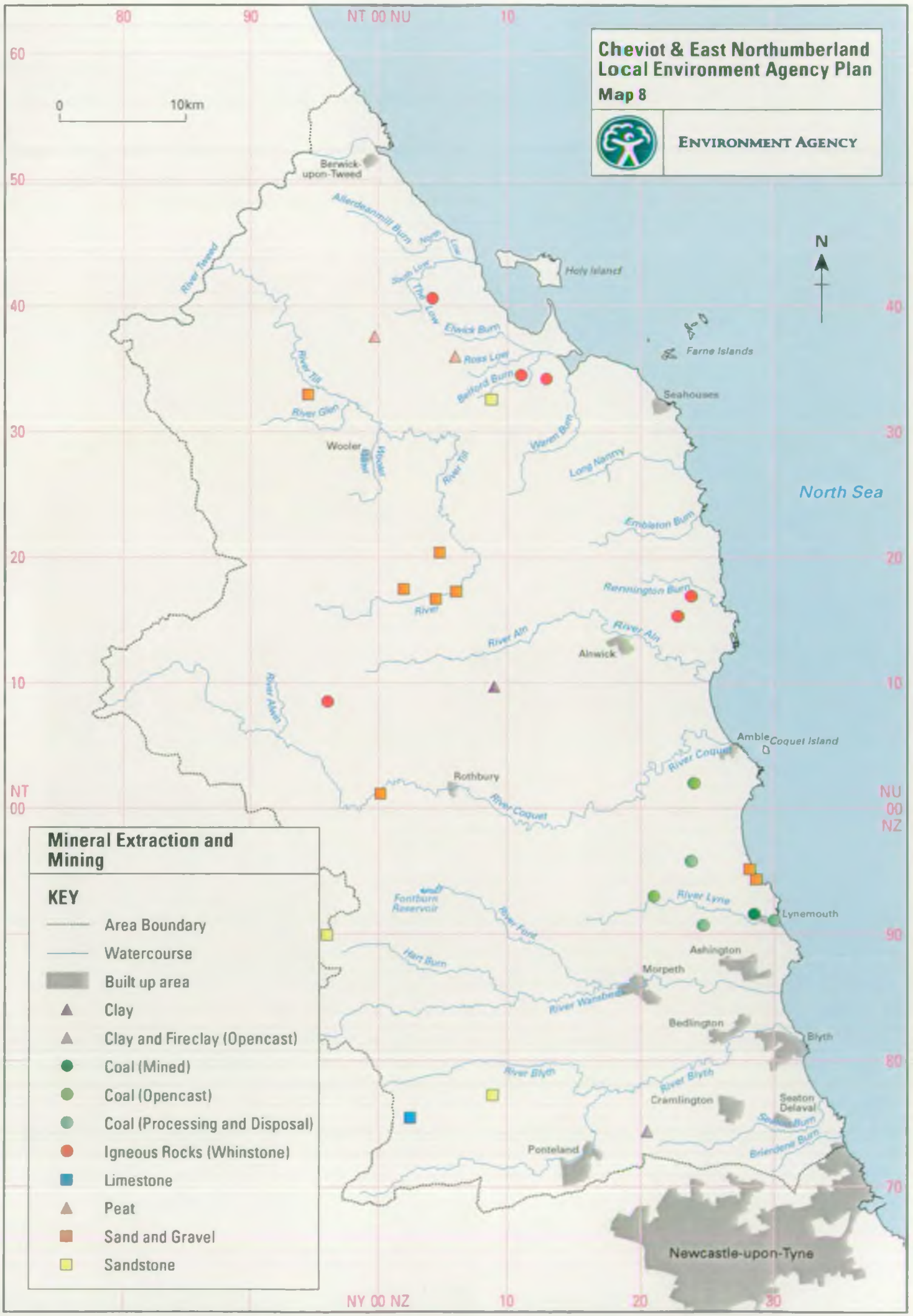
Mining

Deep coal mining in the LEAP area has virtually ceased, with only one major colliery at Ellington still working, which is privately-owned. Opencast coal mining is predominant, with many existing and restored sites (see Map 8). Sites are continually being assessed with a view to future opencasting operations.

As the deep mines closed abandoned workings filled with water before overflowing either to a watercourse, or through the many connections to the next colliery to the east. In some areas the minewater discharges to the surface now affect watercourses, in others the water level has not yet reached the surface. The workings are being allowed to flood and the rising minewaters are monitored by the Coal Authority. Overflows of minewaters to the surface are predicted in Blyth around 2006. In other parts of the country, the cessation of pumping and flooding of coal mines has resulted in contaminated discharges to the surface. In particular, rusty deposits of iron hydroxide in the receiving waters have caused severe environmental damage which is both difficult and expensive to remedy. The threat of pollution from this source is a major issue (see Issue 6).

There are a few significant discharges from abandoned and working mines and their associated spoil heaps. The discharges affect the Tyelaw, Hazon, Swarland, Maglin, Forest and Allerburn Mill Burns and is reflected in the poor biological quality in some of these tributaries.

Around 92 million tonnes of mine and quarry wastes are produced in the LEAP area per annum (based on figures from the 1993 Industrial Survey) mainly from opencast coal operations in Castle Morpeth (c80m tonnes), Alnwick (c11m tonnes), Wansbeck (c0.5m tonnes). This material is primarily used as backfill for restoration. These figures are likely to remain constant over the next 10 years.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 8
Environment Agency
0
10km
N
Mineral Extraction and Mining
KEY
Area Boundary
Watercourse
Built up area
Clay
Clay and Fireclay (Opencast)
Coal (Mined)
Coal (Opencast)
Coal (Processing and Disposal)
Igneous Rocks (Whinstone)
Limestone
Peat
Sand and Gravel
Sandstone
Berwick-upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
North Sea
Alnwick
Amble
Coquet Island
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
River Till
River Glen
River Aln
River Coquet
River Lyne
River Blyth
River Font
Fontburn Reservoir
Hart Burn
Allerdeanmill Burn
Elwick Burn
Ross Low
Belford Burn
Warren Burn
Long Nanny
Embleton Burn
Rennington Burn
NT 00 NU
NY 00 NZ
NT 00
NU 00 NZ

Mineral Extraction

The LEAP area is a major producer of aggregates, rock, sand and gravel. The location of the quarries, often in remote rural areas which are of particular landscape, agricultural and conservation importance, means that environmental problems often result from the transportation of the minerals by heavy lorry traffic.

Sand and gravel are extracted at Caistron where completed workings are being developed as a nature conservation area. Planning permission for an extension to these works has been applied for, but has not been given. The extensive areas of open water are a valuable addition to the amenity and wildlife of the valley and are not detrimental to the river. Quarrying at Milfield has a direct discharge to the River Till and complies with its consent to discharge.

Sand extraction has taken place along the coast for many years. In particular, intensive and long term extraction has been undertaken within Druridge Bay and to the south of Blyth. Extraction has now ceased from both areas, although extraction is now taking place near Warkworth/Amble.

This topic relates to Issue 6.

5.6 Surface and Groundwater Abstraction

General

One of the Agency's key roles in managing water resources is the licensing of abstractions from surface and groundwater for public/private water supply, industrial and agricultural use. Our objective is to manage water resources to achieve the right balance between the needs of the environment and those of the abstractors.

Surface Water Abstraction

The abstraction of water is controlled, with certain exceptions, by the Water Resources Act 1991, which sets out a system of Abstraction Licensing. The Act sets out various considerations:

- whether the requirements of the applicant are reasonable;
- the impact on other water users;
- the impact on river flows and the environment.

Groundwater Abstraction

Groundwater abstractions are also licensed under the Water Resources Act as mentioned above. Groundwater, in general, is of high quality, both microbiologically and chemically, and usually requires little treatment. However, there are many activities that can cause pollution through underground seepage and once polluted it is extremely difficult and costly to alleviate. A document entitled '*Policy and Practice for the Protection of Groundwater*' has been published and is being implemented by the Agency within the region.

Groundwater protection zones will consist of inner, outer and entire catchment zones and will be based on the travel time of a pollutant to an abstraction source. These zones will be published and most of the controls will be achieved through planning consultations. The document contains guidelines indicating the Agency's likely response to potentially polluting activities within the various protection zones. These activities include:

- waste disposal to land;
- redevelopment of contaminated land;
- application of sludge/slurries to land;
- discharge to underground strata.

Protection zones will be designated for the more vulnerable sources, such as those used for public water supply.

In addition to the statutory exemptions in the Act, the area covered by the former Northumbrian Water Authority has special provisions included in the Northumbrian Water Authority Act 1981 which states:

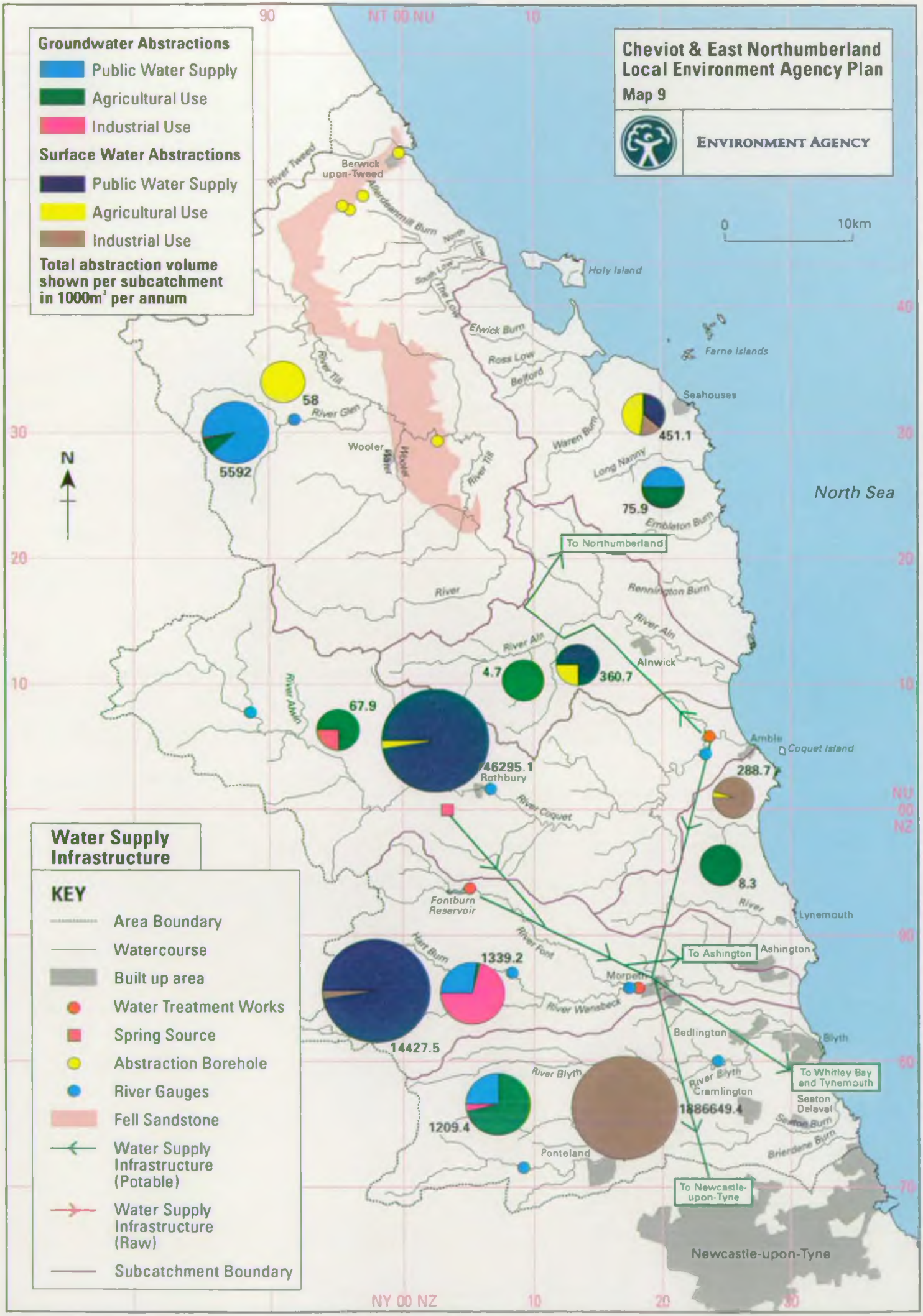
"*Abstractions from underground strata and springs which do not exceed 1,000,000 gallons a year, with a daily rate not exceeding 50,000 gallons, are exempt from licensing control.*"

Local Perspective

Map 9 shows the water supply infrastructure of the Cheviot and East Northumberland area.

Kielder releases indirectly support some of the area usually supplied by Fontburn reservoir and the Mitford abstraction. In dry years, when levels in the Fontburn reservoir are low and the abstraction at Mitford has ceased, flow is reversed in the Font main (which normally carries the potable water supply treated at Fontburn Water Treatment Works) so that the Bedlington area can be supplied with abstracted Tyne water instead. With the availability of water from the regional strategic supply of Kielder, the standard of service to be met by the statutory water supply undertaker (Northumbrian Water Limited) specify that no restrictions to water supply (hosepipe bans, drought orders etc) will be made. This means that no drought reductions to the compensation flow or Hands off Flows (HOF) are anticipated.

The following tables show number of abstractions (groundwater and surface water) and associated statistics in the area covered by Cheviot and East Northumberland LEAP:


Groundwater Abstractions
Public Water Supply
Agricultural Use
Industrial Use
Surface Water Abstractions
Public Water Supply
Agricultural Use
Industrial Use
Total abstraction volume shown per subcatchment in 1000m³ per annum
Cheviot & East Northumberland Local Environment Agency Plan
Map 9
Environment Agency
0
10km
N
North Sea
Holy Island
Farne Islands
Seahouses
Berwick-upon-Tweed
River Tweed
Elwick Burn
Ross Low
Belford
River Till
River Glen
Wooler
Hoolet Burn
Warren Burn
Long Nanny
Embleton Burn
Rennington Burn
River Aln
Alnwick
River Coquet
Amble
Coquet Island
Fontburn Reservoir
Hart Burn
River Font
Morpeth
River Wansbeck
Ashington
Lynemouth
Bedlington
Blyth
River Blyth
Cramlington
Seaton Delaval
Seaton Burn
Briardene Burn
Ponteland
Newcastle-upon-Tyne
To Northumberland
To Ashington
To Whitley Bay and Tynemouth
To Newcastle-upon-Tyne
5592
58
451.1
75.9
4.7
360.7
67.9
46295.1
Rothbury
288.7
8.3
1339.2
14427.5
1209.4
1886649.4
Water Supply Infrastructure
KEY
Area Boundary
Watercourse
Built up area
Water Treatment Works
Spring Source
Abstraction Borehole
River Gauges
Fell Sandstone
Water Supply Infrastructure (Potable)
Water Supply Infrastructure (Raw)
Subcatchment Boundary

Catchment	No licensed surface water abstractions	Authorised abstraction TCMA	Abstracted water for public water supply (%)	Abstracted water for agricultural use (%)	Abstracted water for industrial and other uses (%)
Till/Tweed (Eng)*	5	58.0	—	100.0	—
Coastal Streams	9	451.1	36.7	15.5	47.8
Aln	9	360.7	75.9	22.8	1.3
Coquet	18	46,295.1	98.0	1.2	0.8
Wansbeck	12	14,427.5	98.4	0.4	1.2
Lyne	4	288.7	—	6.0	94.0
Blyth	9	1,886,649.4	—	0.1	99.9

* The licensed surface water abstractions are from the coast not the River Tweed or its tributaries.
TCMA = Thousand cubic metres per annum

Table 2 Details of Surface water Abstractions

Catchment	No licensed ground water abstractions	Authorised abstraction TCMA	Abstracted water for public water supply (%)	Abstracted water for agricultural use (%)	Abstracted water for industrial and other uses (%)
Till/Tweed (Eng)	11	5,592.0	89.0	9.5	1.5
Coastal Streams	6	75.9	52.5	47.5	—
Aln	1	4.7	—	100.0	—
Coquet	5	67.9	—	75.3	24.3
Wansbeck	7	1,339.2	28.2	2.2	69.6
Lyne	1	8.3	—	100.0	—
Blyth	7	1,209.4	25.8	71.6	2.6

Table 3 Details of Groundwater Abstractions

We have no control over **surface** water abstractions from the River Tweed and its tributaries (Section 4 of the Water Resources Act 1991 states '*The provisions of this Act relating to the functions of the National Rivers Authority - now the Environment Agency - under Chapter II Part II of this Act, and the related water resource provisions so far as they relate to other functions of the Authority, shall not apply to so much of any inland waters as (a) are part of the River Tweed*.' Accordingly, there are no surface water abstractions licensed in the Tweed catchment. However, groundwater abstractions in the Till catchment are licensed by the Agency.

This topic relates to Issues 5 and 8.

5.7 Effluent Disposal

General

The disposal of domestic, agricultural and industrial effluents to water can adversely affect river and coastal water quality. Potentially, this may have a significant effect on other uses, particularly water abstraction, recreation and ecology.

One of the Agency's main tasks is to control the impact of effluent discharges on river water quality. This is achieved by issuing conditional consents to discharge under the Water Resources Act 1991. Such consents contain conditions limiting volume and quality of discharges at levels which ensure that the quality of the river below the point of discharge is suitable for the expected uses. Conditions are determined for each discharge and take account of the diluting effect of the river.

The Agency also controls discharges to water from major industrial sites (see Section 5.3).

In addition to the disposal of effluents to water, the disposal of certain industrial effluents by surface application to farm land is also practised. This may be classed as an exempt activity under Schedule 3 of the Waste Management Licensing Regulations 1994 providing that:

- no more than 250 tonnes of waste per hectare is spread during any 12 months;
- the spreading results in benefits to agriculture or ecological improvement;
- detailed particulars of the spreading are furnished in advance to the Agency.

Local Perspective

The main discharges in the LEAP area are shown on Map 10.

Many of the larger discharges are made to sea. In general, the location of discharges to coastal waters reflects the distribution of people in the area. In North Northumberland there are few but no large discharges; Amble's sewage discharge is the first significant discharge. The Hadston/Broomhill outfall at Druridge Bay causes a sewage litter/aesthetic problem to users of Druridge Bay SSSI, however it is not timetabled for improvement until 2005. Further south are the recently commissioned Newbiggin long sea outfall and the existing Cambois sea outfall, with Synpac Pharmaceutical trade effluent discharge immediately adjacent to the latter. There are discharges of trade effluent and cooling water from both the Alcan and Blyth Power Stations and a number of smaller discharges from the two sites. Effluent discharges from Ellington Colliery near Lynemouth are consented and these discharges consist of minewater and coal washery effluent. Sewage problems have arisen in the Marina at Amble associated with the Gut.

To the south of Cambois, there are now no significant continuous sewage or trade effluent discharges direct to coastal waters. However discharges to the Blyth estuary can affect adjacent coastal waters and some storm sewage discharges to the sea remain. Once the STW improvements have been completed at Cambois it is hoped that all raw sewage discharges into the Blyth estuary will be treated.

Significant discharges of sewage require treatment to comply with the requirements of the EC Urban Waste Water Treatment Directive (see Section 6.1). Discharges from population equivalents (pe) of greater than 15,000 generally require secondary treatment to be provided by the end of the year 2000. Those between 10,000 and 15,000 pe must receive such treatment by the end of 2005. Smaller discharges must receive "appropriate treatment" by the end of 2005. "Appropriate treatment" will depend on the needs of the receiving water.

Discharges to sea of between 10,000 and 150,000 pe (and, exceptionally, with the agreement of the European Commission, those greater than 150,000 pe) to "high natural dispersion areas" (HNDAs) may require only primary treatment. In this case, the discharger must demonstrate to the Agency by "comprehensive studies" that the discharge has no adverse effect on the environment. These discharges must be reviewed every four years. A number of HNDAs have been designated by the DoE on this stretch of coast at Amble, Newbiggin and Cambois (see Issue 4).

This topic relates to Issues 3, 4 and 13.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 10
ENVIRONMENT AGENCY
0
10km
N
Effluent Disposal (Discharges with Numerical Consents)
KEY
Area Boundary
Watercourse
Built up area
Sewage
Septic Tanks
STW
Trade
Volume of Discharge m³/day:
250,000 - 251,000
2,000 - 250,000
0 - 2,000
North Sea
Farne Islands
Holy Island
Berwick-upon-Tweed
Seahouses
Wooler
Alnwick
Amble
Rothbury
Morpeth
Ashington
Blyth
Bedlington
Cramlington
Seaton Delaval
Newbiggin HNDA
Amble HNDA
Coquet Island
Lynemouth
Pontelland
Newcastle-upon-Tyne
River Tweed
River Till
River Glen
River Aln
River Coquet
River Wansbeck
River Blyth
River Font
Fontburn Reservoir
Hart Burn
Ellwick Burn
Belford Burn
Warren Burn
Long Nanny
Embleton Burn
Rennington Burn
Seaton Burn
Briardene Burn
BERWICK STW
READY MIXED CONCRETE LTD
CALEDONIAN OIL COMPANY TWEED DOCK
SCREMERSTON NORTH OUTFALL
HAGGERSTON CASTLE CARAVAN PARK STW
HOLY ISLAND SEA OUTFALL
LOWICK STW
BAMBURGH CASTLE GOLF CLUB & A PROPS AT HARKNESS ROCKS
BAMBURGH PRELIMINARY TREATMENT WORKS
SEAHOUSES STW
MILFIELD STW
CHEVIOT QUARRY
CRAGMILL QUARRY
BELFORD STW
WOOLER STW
GLENDALE WTP
BEADNELL PRELIMINARY TREATMENT WORKS
EMBLETON STW
DUNSTANBURGH COMMINUTOR STATION
CRASTER COMMINUTOR STATION
HOWICK QUARRY
LONGHOUGHTON STEEL PRELIMINARY TREATMENT WORKS
BREAMISH GRAVEL QUARRY
CER HUMES (UK) LTD
GLANTON STW
ALNWICK STW
WHITTINGHAM STW
ALNMOUTH STW
SHILBOTTLE STW
WARKWORTH WTW
WHITTLE MINE
AMBLE PRELIMINARY TREATMENT WORKS
CHESTER HOUSE OCCS SETTLEMENT LAGOONS
THROPTON & SNITTER STW
CAISTRON QUARRY
ROTHBURY STW
REIVERS WELL FISH HATCHERY
FELTON STW
ROGSTON STW
THRSTON STW
HADSTON PUMPING STATION
MADENS HALL OCCS DI LAGOONS
COLLIERSDEAN OCCS SETTLEMENT LAGOON
LONGHORSLEY STW
STOBSWOOD OCCS BOREHOLE
FONTBURN WTW
STOBSWOOD OPENCAST COAL SITE (SETTLEMENT LAGOONS)
ULGHAM STW
CRESSWELL
LYNEMOUTH STW
COCKLE PARK FARM NEW ANIMAL HOLDING STATION
BUTTERWELL DISPOSAL POINT COAL STOCKING AREAS
PEGSWOOD MOOR FARM OCCS WTA 'C' SETTLEMENT LAGOON
PEGSWOOD STW
NEWBIGGIN & ASHINGTON SEWAGE SCHEME MAIN OUTFALL
SCOTS GAP STW
MORPETH STW
WINGBECK PUMPING STATION
CAMBOIS SEA OUTFALL
HEPSCOTT STW
MAWBURN HOUSE SEA OUTFALL
HATHERY LANE OCCS WTA SETTLEMENT LAGOONS
STANNINGTON STATION ROAD STW
WHALTON STW
ST MARYS HOSPITAL STW
BLYTH AND CRAMLINGTON STW
LINK HOUSE SEA OUTFALL
MOOTLAW QUARRY
CORNYHAUGH MINK FARM
GARDENERS HOUSES OCCS
SEGHILL WASTE DISPOSAL SITE
MATFEN STW
STAMFORDHAM STW
THE GARAGE BURN HOUSE DUDLEY
NEWCASTLE AIRPORT MAINTENANCE DEPOT & HARD STANDS
80
90
NT 00 NU
10
60
50
40
30
20
10
NT 00 NY
NY 00 NZ
NU 00 NZ
10
20
30
40
50
60
70
80
90

5.8 Waste Management

General

All sectors of society produce waste and there are a variety of facilities which perform the very necessary function of processing, recycling and disposing of it. These waste management activities can have a detrimental impact on the environment unless they are suitably regulated. Some of the most significant potential problems include:

- pollution of surface or groundwater;
- uncontrolled escape of landfill gas;
- nuisance caused by litter, vermin, odour, dust, noise or vibration;
- release of poisonous, harmful or polluting materials into the environment;
- waste materials proving harmful to health;
- contamination of land on which waste management activities have taken place.

To promote a more sustainable approach to waste management, the Government published a white paper '*Making Waste Work: A Strategy for Sustainable Waste Management in England and Wales*'. To help achieve its objectives the strategy ranks the waste management options into a hierarchy which gives a broad indication of their potential risk to the environment (with the least risk at the top).

- reduction
- re-use
- recovery (ie recycling, composting, or converting into energy)
- disposal

Targets have been set to recycle or compost 25% of household waste by 2000 and reduce the amount of controlled waste going to landfill from 70 % to 60% by 2005.

The Role of The Agency

The Agency's principal role in directly protecting the environment from waste is through the regulation of waste management facilities. Under the Waste Management Regulations 1994 a system of environmental safeguards and standards are set. We issue conditional licences with specific conditions that seek to prevent pollution of the environment and harm to human health. These licensed facilities are monitored to ensure that standards are met.

The Agency has a strategic waste planning role to provide advice to the Secretary of State in the preparation of a national waste strategy. We have also been charged with carrying out a national waste survey to provide a comprehensive assessment of waste produced and sites that deal with it. The information obtained will be used for both local and national planning purposes. The national strategy will help to progress the DoE's proposals on sustainable waste management and will influence the direction of the waste management industry in the future.

The Agency has a new duty to monitor producer responsibility schemes which require companies to recover value from specified waste streams. The first statutory scheme, introduced in March 1997, covers packaging and packaging waste.

The main functions and activities of the Agency with regard to controlled waste are set out below:

- operation of enforcement procedures aimed at unauthorised activities;
- regulate and monitor the movement of special waste, including international movements;
- registration of waste carriers, brokers and licensing exemption and the promotion of the Duty of Care;
- regulation of Integrated Pollution Control processes which involve waste;
- respond to planning consultations where issues concerning waste may be a relevant factor;
- maintenance of a public register and the general provision of waste management information and advice;
- have regard to the landscape and conservation impacts of waste management activities.

There are wastes which currently are not controlled by the Agency and include:

- decommissioned explosives;
- waste from mining and quarrying operations;
- agricultural waste.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 11
Environment Agency
Licensed Landfill Sites
KEY
Area Boundary
Landfill site
Watercourse
Primary Road
1 Harecrag Waste Disposal Site
2 Sisters Waste Disposal Site
3 Ellington Road Waste Disposal Site
4 Seghill Waste Disposal Site
5 Brenkley Quarry Landfill Site
0
10km
N
North Sea
Holy Island
Farne Islands
Seahouses
Coquet Island
Berwick-upon-Tweed
Wooler
Alnwick
Amble
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
River Till
River Glen
Elwick Burn
Ross Low
Belford Burn
Waren Burn
Long Nanny
Embleton Burn
River Aln
River Coquet
River Aln
Fontburn Reservoir
River Font
Hart Burn
River Wansbeck
River Blyth
River Lyne
Brierdene Burn
Allerdeanmill Burn
The Low
Wooler Water
NT 00 NU
NY 00 NZ
80
90
10
20
30
60
50
40
70

Local Perspective

In the Cheviot and East Northumberland area there are 57 licensed waste management sites, 19 of which are landfill sites. Some of the largest and most widely used landfills are shown on Maps 11 and 13, many are managed by Northumbrian Environmental Management Limited. These sites take inert and biodegradable wastes and are engineered to minimise the risk of pollution of groundwater and the danger of landfill gas. Other smaller sites may take only inert wastes. Seghill and Ellington Road landfill sites have had the go ahead for landfill gas electricity generation schemes. The plans are on hold at the moment but may occur within the LEAP period.

There are also many sites which are exempt from a waste management licence, but which must register as exempt. These range from sanitary discharges from trains to waste being used for land reclamation. There are approximately 250 sites registered in the LEAP area including 6 where the waste is used for land reclamation or improvement and 23 that can store waste suitable for the purpose of specified construction work.

There are 14 licensed motor vehicle dismantlers and metal recovery sites (scrapyards) in the LEAP area (see Map 12). Some of these sites have been licensed recently and, through conditions in their licences, are being steadily improved.

The 10 civic amenity sites located throughout the LEAP area enable householders to dispose of excess or bulky domestic wastes. These sites are being increasingly used, encouraged by the extension of their role for use as recycling centres. Other transfer stations are licensed to accept a variety of wastes which may include inert and construction wastes, commercial, industrial or household wastes. Alchema at Berwick is licensed to store spent copper etchants, both from national and european sources, the copper is recovered. There is one composting plant located at Tritlington near Morpeth which mixes segregated, organic, household wastes and occasionally manure to produce approximately 2,000 tonnes of soil conditioner a year.

Many of the transfer stations are used for bulking up wastes before transport to the final disposal point. The stations will become increasingly important as waste will be transported further to larger and fewer landfill sites. In the LEAP area the two largest landfill sites are located to the south.

The waste management of companies within the LEAP area has improved significantly over the past few years with the introduction of the Duty of Care Regulations in 1992, which control the management of wastes from cradle to grave, and also the increase in the standards required of waste management sites. Due to the abundance of landfill sites in the LEAP area and in neighbouring areas, landfill is the main method of disposing of waste. However, there is still a need to minimise waste, to improve business efficiency and move towards sustainable development (see Issues 9, 10, 11, 12, 13 and 14). The Agency will continue to educate producers on better waste management and will promote waste minimisation initiatives.

Information on quantities of waste arising and being disposed of in county and district areas will be available in 'A Report on Waste Management in the Northumbria Area'.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 12
ENVIRONMENT AGENCY
0
10km
N
Licensed Metal Recovery Sites
KEY
Area Boundary
Metal Recycling Site
Motor Vehicle Dismantler
Watercourse
Primary Road
Berwick upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
Alnwick
Amble
Coquet Island
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
North Sea
River Tweed
River Till
River Glen
River Aln
River Coquet
River Font
Hart Burn
River Wansbeck
River Blyth
River Lyne
Fontburn Reservoir
Embleton Burn
Warren Burn
Long Nanny
Ewick Burn
Ross Low
Bellford Burn
Briardene Burn
A1
A697
A1068
A189

Cheviot & East Northumberland Local Environment Agency Plan
Map 13
Environment Agency
Licensed Waste Management Sites
KEY
Area Boundary
Built up area
Composting Site
Civic Amenity Site
Special Waste Storage Site
Transfer Station
Watercourse
Primary Road
1 North Road Transfer Station
2 Shield Green Farm Composting Station
0
10km
N
North Sea
Holy Island
Farne Islands
Coquet Island
Berwick-upon-Tweed
Seahouses
Wooler
Alnwick
Amble
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
Fontburn Reservoir
River Tweed
River Till
River Glen
River Aln
River Coquet
River Font
River Lyne
Hart Burn
River Wansbeck
River Blyth
Long Nanny
Embleton Burn
Elwick Burn
Ross Low
Belford Burn
Waren Burn
The Low
Allerdeanmill Burn
Seaton Burn
Brierdene Burn
Wooler Water
River Alwin
CS
NT 00 NU
NY 00 NZ
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5.9 Flood Defence

General

Rivers drain groundwater and surface water run-off from land. River channels have a limited capacity and when this is exceeded, flooding occurs. Floodplains convey and store water. The capacity to store and carry water is reduced if significant areas of floodplain have been raised, embanked, or built upon. The loss of storage volume in one location can lead to higher river levels elsewhere. It is therefore neither possible, nor desirable, to alleviate flooding in all areas. The priority for flood defence lies in urban areas not in undeveloped floodplains which should be allowed to play their natural role. The continuity between the river and its floodplain is an essential part of the water cycle. Higher standards of service are needed for urban areas compared with agricultural areas (see Section 6.2).

The magnitude of a flood can be expressed in terms of the frequency at which that flow is likely to occur: for example, 1 in 10 years or 10% chance in any one year. Similar types of watercourse may respond differently to the same rainfall conditions due to local variations, such as land use.

Localised flooding can occur where watercourses become blocked at particular points, such as under bridges or in culverts. Flooding can also occur where surface water drains are unable to discharge into watercourses due to raised water levels, or further back in the surface water drainage system where their capacity is exceeded.

The Agency has a duty under the Environment Act 1995 to exercise a general supervision over all matters relating to flood defence and land drainage throughout England and Wales. The flood defence powers, duties and responsibilities are generally set out in the Water Resources Act 1991 and the Land Drainage Act 1991.
The Agency's flood defence role covers:

Regulation

- regulation of main river through the Water Resources Act 1991 and local byelaws;
- preparation of surveys under Section 105 of the Water Resources Act 1991 to define the nature and extent of flood risks;
- issuing of land drainage consents for works in, over, under or within five metres of the top of the riverbank of a main river, or for works in the channel of an ordinary watercourse;
- advising on the control of development to prevent surface water run-off problems;
- preparation of Water Level Management Plans for Sites of Special Scientific Interest (SSSIs) or other areas of high ecological or landscape importance, where we are the 'operating authority' (see Issue 18).

Operations

- maintenance of main rivers according to available resources and priorities; this includes vegetation control, repairs to earth embankments and other floodwalls, obstruction and blockage removal;
- comparison of target and actual Standards of Service to allow improvement and maintenance works to be prioritised towards those rivers which do not meet their target standards (see Section 6.2);
- undertaking an emergency response role during times of high water levels, patrolling defences, operating flood defence structures, removing blockages and carrying out emergency repairs needed.

Improvements

- building new flood defences in areas where flooding is a serious problem.

Flood Warning

- operating a flood forecasting service using rain gauges, river level data, and weather radar;
- issuing of flood warnings to public, aiming to provide a two hour warning of commencement of flooding, wherever practicable (see Issue 19).

Flood defence works are carried out in an environmentally acceptable manner, plans should take account of: the impact of proposals on natural features; have regard to protection of features of historic interest; further the conservation and enhancement of flora, fauna and other natural features.

Local Perspective

The LEAP area covers many 'main river' catchments and 'ordinary watercourse' (also known as 'non-main river') catchments (see Map 14). These rivers have many varied characteristics ranging from: the large, fast flowing gravel rivers draining the Cheviots; to small, low-lying drainage ditches which primarily drain agricultural land; to urban watercourses which must cope with the increased run off from developed land. Each of these watercourses has its own associated flooding and drainage problems.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 14
Environment Agency
Flood Defence - Main River
KEY
Area Boundary
Main River
Other River
Built up area
0
10km
N
North Sea
NT 00 NU
NY 00 NZ
NT
00
NY
NU
00
NZ
80
90
10
20
30
70
60
50
40
Berwick-upon-Tweed
Whiteadder Water
River Tweed
Allerdeanmill Burn
Dean Burn
Berrington Burn
South Low
North Low
The Low
Dry Burn
Holy Island
Farne Islands
Seahouses
Pallinsburn
Bradford Burn
River Till
Hetton Burn
Elwick Burn
Ross Low
Belford Burn
Bowmont Water
River Glen
College Burn
Wooler
Wooler Water
Carey Burn
Harthope Burn
Lilburn Burn
Roddam Burn
Waren Burn
Long Nanny
Embleton Burn
Shipley Burn
Edlingham Burn
Rennington Burn
Glanton Burn
River Aln
Alnwick
Callaly Burn
Coe Burn
Hampeth Burn
Tyelaw
Hazon
Swarland
Fence Burn
Rothbury
River Coquet
Amble
Coquet Island
Ridlees Burn
Barrow Burn
Holystone Burn
River Alwin
Usway Burn
Forest Burn
Fontburn Reservoir
Newbigin
Fallowlees
Bywell Letch
Paxtondean Burn
Chevington
Longdike
River Font
River Lyne
Lynemouth
Ashington
How Burn
Bothal Burn
Hart Burn
Middleton Burn
River Wansbeck
Hepscott Burn
Morpeth
Sleek
Bedlington
Blyth
Duddo Burn
River Blyth
Cramlington
Seaton Delaval
Seaton Burn
Black Heddon Burn
Coldcoats Burn
Small Burn
Fenwick Burn
River Pont
Ponteland
Med Burn
Briardene Burn
Newcastle-upon-Tyne

Till and Breamish

The River Till system (which includes rivers such as the Glen/Bowmont, Wooler Water and College Burn) drains the majority of the Cheviot massif, and is distinguished by the way the fast flowing hill streams cut into the valley gravels. Vast quantities of material are moved in flood conditions, and deposited in the lowland valleys. Development of the lower land means that this movement must be constrained to reduce flooding and damage to property. The main areas at risk from flooding are at Wooler and Kirknewton, together with extensive areas of farmland, which is generally high quality arable land.

The Agency maintains a number of bed control weirs designed to limit the movement of gravel in these rivers. The growth of bankside vegetation, to reduce the amount of sediment entering the watercourse from eroding banks and the adjacent land, is encouraged.

Aln, Coastal Streams and Coquet

The flow of the Rivers Aln and Coquet were used as a source of water power for both agricultural and industrial use. The remaining mill dams act as controls on the river regime, and their removal could initiate a long term period of instability in the river channel.

Although there are historical reports of flooding in Alnwick, the Agency has no records of this, or of flooding in any of the villages in the Aln catchment. Property at Waren Mill from the Waren Burn is at risk on flooding. Flooding on the River Coquet is restricted to a small number of properties at Warkworth, Rothbury and Thropton, and a few redeveloped mills. A large amount of agricultural land also lies within the floodplain.

Upstream of Rothbury, we are promoting a scheme to reduce the movement of gravel in the watercourse by increasing the bankside vegetation. This scheme, which is in association with English Nature and adjacent landowners, is designed to reduce the risk of flooding to properties downstream.

Wansbeck/Lyne

At Morpeth there is a long and extensive history of flooding from the River Wansbeck, with over 500 properties flooded in 1963. Floodwalls were constructed for most of the areas at risk, but East Mill and the property upstream of Oldgate Bridge (High Stanners) are not protected. The level of protection provided was based on the 1963 flood level. Some areas, however, may be affected by smaller events, as the reconstructed Oldgate Bridge is thought to present some obstruction to the flow.

During high flows trees are washed downstream which cause blockages at Oldgate Bridge and Stobsford Bridge in Morpeth. It is important that the channel capacity through Morpeth and the structural integrity of the defences are maintained, in order to give continued flood protection.

Downstream from Morpeth the only properties at risk are mill buildings at Bothal, and a small number of properties at Sheepwash.

A few isolated properties on the River Lyne at Ellington Mill and Tritlington are also at risk from flooding.

Blyth/Pont

Flooding in Ponteland has been well documented, with eleven floods damaging property over the last century. Alleviation works were completed in 1995, and the scheme protects 113 properties to a return period of 1 in 50. We are investigating the level of protection provided to properties at Eland Haugh.

Other areas at risk from the River Pont are at Stamfordham and Kirkley Mill, but flood events are less frequent and less extensive.

Tidal Flooding

Tidal flooding is not a major problem in the LEAP area, principally due to the generally high coastline protected by natural cliffs and dunes. We do, however, maintain 7.65km of sea defences in the area: at Alnmouth, Goswick, Beal Sluice and Ross North and South. The defences are mainly earth embankments or natural sand dunes and tidal sluices protecting agricultural land, isolated roads and properties. Property at Newbiggin is protected by a sea wall maintained by the local authority.

Increases in high tide levels due to global warming may extend the areas at risk from flooding. An allowance of 4mm/year increase is advised to developers on flood levels in tide risk areas. A number of properties in Berwick and Tweedmouth are close to the highest recorded tidal levels. An increase in sea levels due to global warming and an increase in exposure to wave action, if Spittal Point (Berwick upon Tweed) was eroded, might aggravate this problem.

Tidal flooding also affects agricultural land in a number of locations. Roads and a small number of properties are also at risk in Amble, Warkworth, Boulmer, Beadnell, Seahouses, Waren Mill, and on Holy Island.

The town of Blyth is built in a shallow basin to the south of the river, and part of the town centre is below high tide level. Pumps have been installed on the surface water system to prevent flooding of the town following sewers backing up during high tides. A significant number of properties in Blyth could be at risk from flooding in an extreme event.

Beach and foreshore levels along the north east coast are being monitored using permanent reference stations, to see whether they are stable, eroding or accreting. This information will determine the future management of the coast.

Flooding from Ordinary Watercourses (Non-Main River)

Certain ordinary watercourses can cause flooding to houses and property but, due to the speed that these watercourses rise and their velocity of flow after heavy rainfall, the issuing of flood warnings is not possible.

Property which is at risk includes: houses at Belford from the Belford Burn; at Rothbury from the Coplish Burn; at Alwinton from the Netherton Burn and Hoseden Burn.

A number of ordinary watercourses which drain to the River Wansbeck at Morpeth can cause flooding, the Cotting Burn in particular could cause serious flooding by blockage or failure of old culverted sections. During the 1960s flooding in the LEAP area was caused by the Cotting Burn backing up from the River Wansbeck during exceptionally high flows.

Some flooding has occurred at Powburn from non-main river. There are various sources of the flooding and some alleviation works have been carried out.

Water Level Management Plans

Recent guidance has been issued by the Government on the preparation of Water Level Management Plans (WLMP) for Sites of Special Scientific Interest, or other areas of high ecological or landscape importance. Where the Agency is the operating authority, we will liaise with English Nature to prepare a plan to ensure appropriate key water levels are safeguarded (see Issue 18).

There are two SSSIs in the LEAP area which have been identified as requiring WLMPs in order to integrate and balance water level requirements for a range of activities, including agriculture, flood defence and conservation. The sites are Till Riverbanks and Prestwick Carr. An Interim Management Statement has been prepared for Till Riverbanks and a Management Plan for Prestwick Carr.

Prestwick Carr drains some 1,800 hectares of low-grade agricultural land to the east and north of Ponteland. The Agency is partly responsible for the water levels in the Carr through the management of the drains. The plan is aimed at preventing degradation of the SSSI and providing a buffer zone of natural habitat.

A WLMP has also been produced for an area of the River Till where a SSSI site has been scheduled due to the presence of a nationally scarce variety of beetle.

Shoreline Management Plans (SMP)

Local authorities, in partnership with the Agency and English Nature, are preparing a Shoreline Management Plan for the coast from St Abb's Head to the River Tyne. The plan: improves our understanding of coastal processes; assists in predicting the likely future evolution of the coast; assists in identifying assets at risk; improves consultation between organisations with an interest in the shoreline. In conjunction with this plan we carry out regular beach monitoring surveys (see Issue 17).

The production of the SMP is being effected in two stages:

- Stage 1 - data collection, analysis and setting of overall Management Objectives and Management Units. This stage has recently been completed.
- Stage 2 - plan preparation, including assessment of strategic coastal defence policy options and identification of favoured policies. This stage is currently underway.

This section relates to Issues 17, 18, and 19.

5.10 Agriculture and Forestry

General

Over 80% of the land in England and Wales is farmland. The way this land is used affects the quality of the environment.

Agriculture

Modern food production can involve the use of a range of agrochemicals. More intensive methods of stock farming may result in silage effluent and slurry disposal problems. Poor management practice involving these materials can lead to the pollution of ground, surface waters, and of land and air. Landowners and farmers are not only food or timber producers they are also responsible for the care of the majority of our countryside. A great many potential enhancements to the countryside are within their control.

There are a limited number of ways the Agency can directly influence how farmers use land, however we can control and prevent pollution in the same way as we do with other industry. Other agencies such as the Ministry of Agriculture, Fisheries and Food (MAFF) also encourage sensitive farming practices by means of financial incentives. Farmers are also encouraged to follow advice published in free MAFF Codes of Good Agricultural Practice for the Protection of Water, Air and Soil. MAFF provides farmers with free and confidential advice on pollution prevention via ADAS advisers .

Forestry

Well managed woodland does not harm the environment and will often bring benefits. The Forestry Authority regulates forestry in the UK by licensing some operations, such as felling, and providing grant aid through the Woodland Grant Scheme. MAFF, with the Farm Woodland Premium Scheme, also encourages the creation of new woodlands on farms.

The Agency and the Forestry Commission have jointly prepared the '*Forests and Water Guidelines*' which summarises the best practices for forestry in relation to the protection of the water environment.

The Rural White Paper states the Government's intention to increase forestry cover by 50% in the UK over the next 50 years. To ensure that the environment is properly considered, we will continue to liaise with local authorities regarding the production of Indicative Forest Strategies. We will also liaise with the Forestry Authority and local forest managers regarding the production of Forest Design Plans and general forest management issues. A more formal system for the Agency to comment on Forest Design Plans needs to be set up (see Issue 14 in Part 1).

Local Perspective

The Cheviot and East Northumberland area contains 236,532 hectares of agricultural land, some 82.62% of the total land area, managed by a total of 1,311 registered holdings. Land cover within the LEAP area is shown on Map 15.

Agricultural land is also classified by MAFF into different quality grades from Grade 1 to Grade 5, then non-agricultural, and urban. The majority (53.4%) of agricultural land in the LEAP area is of Grade 3 standard, with 22.5% Grade 5.

Within the LEAP area, two broad areas of rural land use exist. The upper Coquet Valley and the Cheviot Hills are mainly exposed hill and moorland used for rough grazing and sheep farming. The lowland coastal plain is of high land value with rich fertile soils, and the farming practices are mainly arable, with some sheep, dairy and beef cattle.

Pollution incidents

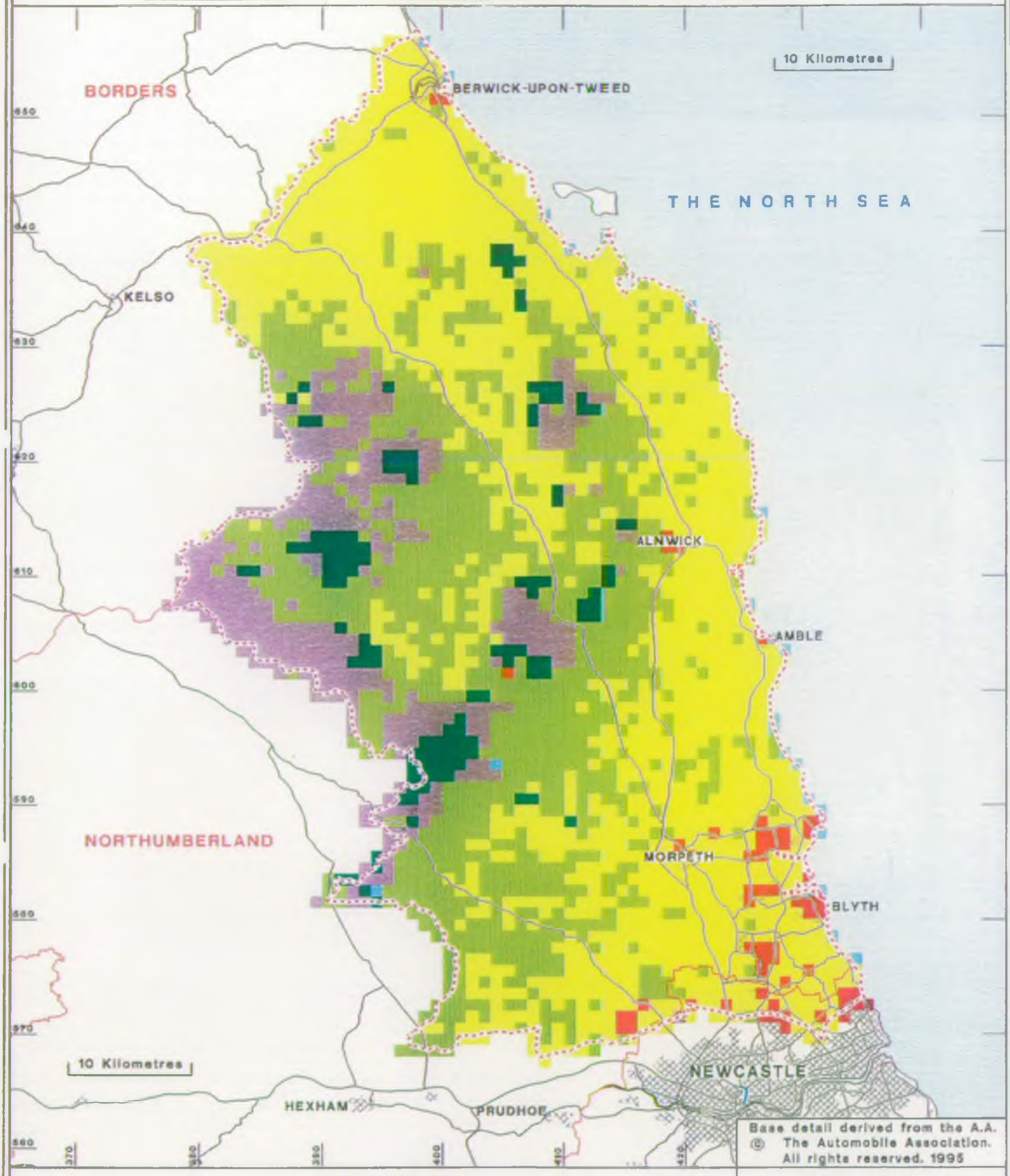
Over recent years, pollution incidents from agricultural and forestry sources have reduced. This reduction is a result of major investment by the agricultural community in anti-pollution equipment such as slurry stores, dirty water systems, pesticide storage areas etc, and an increase in awareness of the problem as a result of pollution prevention campaigns by the Agency, its predecessor organisations, MAFF and others.

As part of its pollution prevention role, the National Rivers Authority carried out a programme of farm visits to increase farmers' awareness of risks to water quality and, where necessary, advise them on remedial measures to reduce the risk of pollution arising from their farming practices. Pollution risk assessments at farms are particularly significant as sheep dip is a potential hazard in upland areas such as the Cheviot Hills and the upper Coquet Valley (see Issues 3 and 14).

Bracken

In parts of the LEAP area, the spread of bracken often causes problems. Bracken is a very invasive plant which is unpalatable to grazing animals and may have effects on human health. Asulox is a herbicide that is effective against bracken. The Agency has an obligation to control and monitor the application of this and other herbicides if groundwater, surface water or fish may be affected. There has been a

Map 15 Dominant Land Cover by 1 Kilometre Square
Cheviots & East Northumberland Leap Catchment



LAND COVER

- Grassland
- Moorland\Heath
- Arable
- Urban\Bare Ground
- Woodland
- Open Water

(Data Source: ITE Land Cover)

Map produced by
Resource Planning Team, ADAS
Leeds Statutory Centre, 1997.
Telephone - (0113) 261 3333

MAFF Ministry of Agriculture Fisheries and Food

considerable increase in number of hectares of land sprayed in the past few years. This significant increase reflects the general trend for an increase in the area of land sprayed with the herbicide in the whole region.

Countryside Management

Landowners and farmers are not only food or timber producers they are also care for the majority of our countryside. A great many potential enhancements to freshwaters and their associated river corridors are within their control. Recognising this the Agency and MAFF have part funded a Farming and Wildlife Advisory Group (FWAG) Officer for the Northumberland and Tyne area who provides farmers with advice on how to integrate farming and conservation. Northumberland National Park officers advise farmers within the park area (see Section 5.12).

The 'set asides' scheme, MAFF's '*Habitat Scheme*' and the '*Countryside Stewardship Scheme*' can provide grant payments to farmers to manage land in a way sympathetic to wildlife and fisheries. One river conservation method is to allow development of a simple buffer strip on riverbanks. Such habitat improvements can prevent bankside erosion and can, over time, increase the depth of a watercourse, providing habitat for fish and other species. Bankside vegetation provides cover, shading and increases the input of terrestrial insects which act as a food source for fish (see Figure 3). This section relates to Issue 11 (Spreading waste to land).

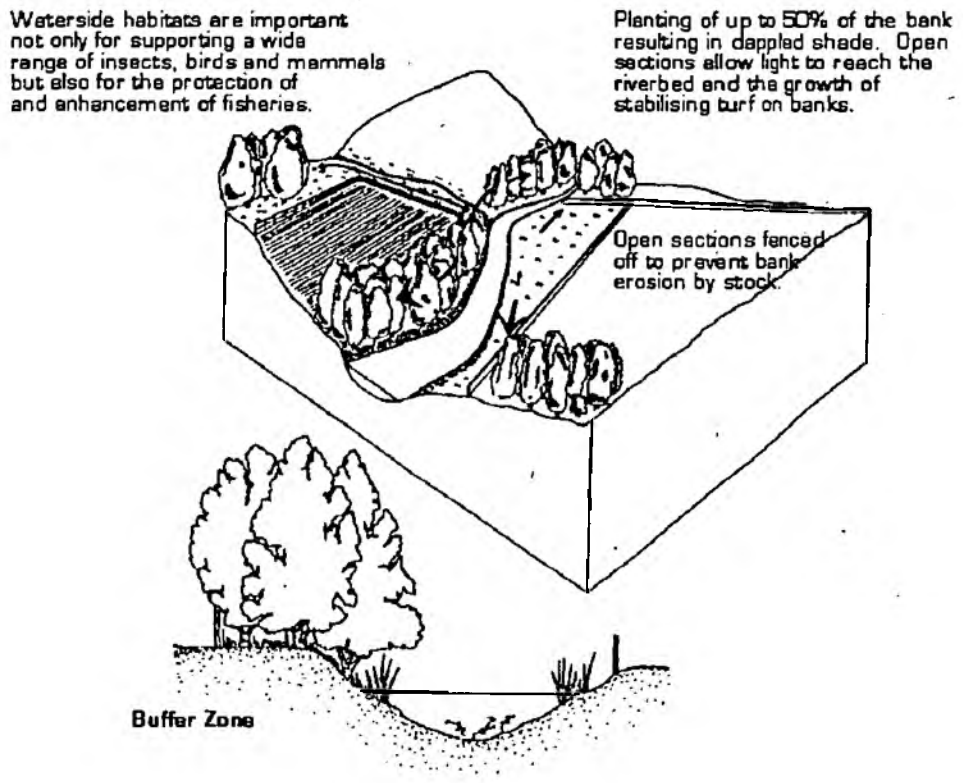


Figure 3 Diagram of River Buffer Zones

The Northumbrian RIVERS Project - bid for European Union Funding

A major initiative for developing and improving Northumberland's rivers is underway as a partnership project. The lead organisation is the Farming and Wildlife Advisory Group (FWAG), and the partners are the Environment Agency, Northumberland National Park, Northumbria Tourist Board, Tyne Riparian Owners and Occupiers Association, Forest Enterprise Kielder and Rothbury Districts. A huge amount of support has been given from all the statutory and local agencies as well as private organisations and individuals. The project aims to protect, conserve and enhance the rivers within the project area for fish and other wildlife, and to allow for their sustainable exploitation for rural economic growth and development. An application to the European Union Objective 5b fund for support to allow this project to go ahead has been made.

The areas of forestry within the LEAP area are at Harwood Forest, Kidland Forest, Thrunton Wood and some fringe areas of Kielder. These areas are managed by the Forestry Commission. Sympathetic planting of deciduous trees can be beneficial. Both deciduous and native coniferous forestry schemes are grant aided by the Forestry Authority. MAFF, under the Farm Woodland Premium Scheme, also encourages the creation of new woodlands on farms. The Agency is involved in the Otterburn Conservation Group which ensures conservation measures are incorporated within forestry and agricultural practices on Ministry of Defence ranges.

5.11 Fisheries

General

Fish populations are influenced by water quality, water quantity and their physical habitat. Fish serve as excellent indicators of the quality of the water environment and, through exploitation by commercial and recreational fisheries, generate financial benefits to local communities. The Agency has a duty to maintain, improve and develop fisheries in England and Wales. This duty does not apply to the Rivers Tweed and the Till.

Local Perspective

Map 16 shows fish species distribution information from electro-fishing surveys.

River Tweed Catchment

The River Tweed has had its own salmon legislation for several centuries. Under various Acts, the River Tweed Commissioners is responsible for the management of salmon and sea trout stocks within the catchment. The Agency has no fisheries duties on the Rivers Till or Tweed.

River Aln

The River Aln has historically been regarded as a sea trout river, with relatively low numbers of salmon reported annually by anglers. However, spawning salmon have been regularly observed in the middle reaches of the river and juvenile salmon parr have been recorded in low densities. Adult sea trout are found throughout the main river as far upstream as Little Ryle, where there is an impassable weir. Sea trout spawning occurs throughout the main stem of the river, and in the lower reaches of the major tributaries, such as the Shipley and Edlingham Burns.

Brown trout are found throughout the catchment and are introduced for angling purposes in the lower reaches. Upstream of the obstruction at Little Ryle, wild brown trout thrive in high densities, with fish of over four years old present.

River Coquet

The River Coquet is one of the best known migratory fisheries in northern England. Salmon, sea trout and wild brown trout are present throughout most of the river system.

Stocking of the river with hatchery reared salmon and sea trout parr occurred in the past, but studies have shown that stocking of these species is currently unnecessary due to several years of high natural recruitment. The last stocking of juvenile salmon occurred in the spring of 1992, but the situation is under constant review and requires the consistent monitoring of salmon and sea trout stocks in the river system.

The River Coquet is one of the few rivers where marine lampreys spawn. Migration of mature marine lampreys occurs in spring and early summer, when the fish enter the river system to spawn in fresh water. This species is protected under the EC Habitats Directive (92/43/EEC).

A number of monitoring techniques are employed to assess fish stocks. A programme of juvenile salmonid monitoring, using electric fishing to survey potential salmon and sea trout breeding grounds, has been carried out annually since 1991. The numbers of adult sea trout and salmon entering the river system are now monitored electronically at the tidal limit.

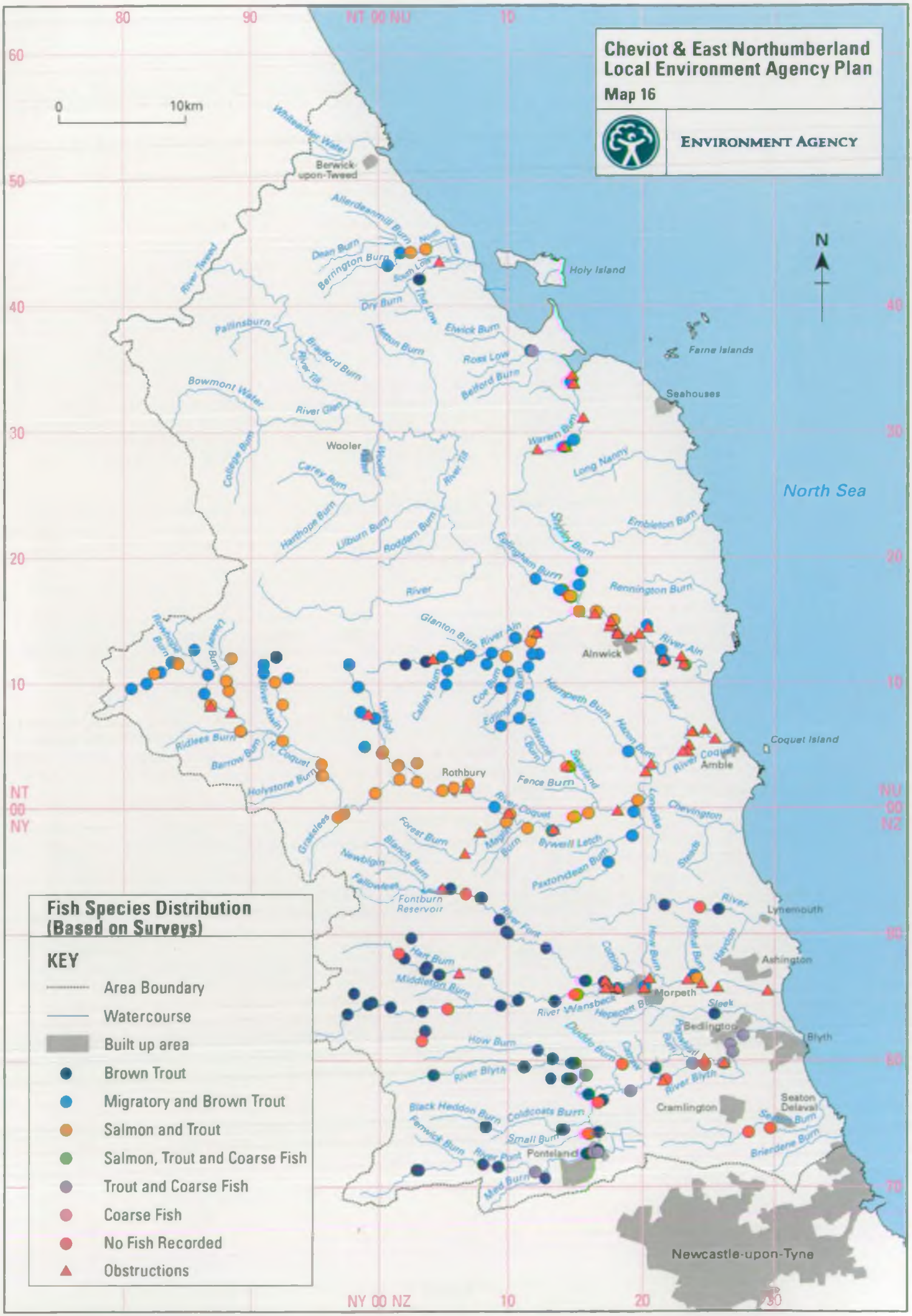
There are no impassable barriers to migration on the main river. All the major obstacles, such as the dams at Warkworth and Acklington, possess fish passes. Information collected by the fish counters at Warkworth demonstrates the effectiveness of the current arrangement to facilitate the movement of fish over the dam. The majority of the tributaries present no obstacle to fish passage and existing structures and fish passes, such as those on the Netherton and Swarland Burns, are continually assessed and repaired when necessary, to ensure that migratory fish can reach spawning grounds.

A Salmon Action Plan is currently being prepared for the River Coquet and this is a comprehensive review of all data available on the salmon stocks (see Issue 22). The plan sets an annual target for numbers of spawning salmon and identifies issues relating exclusively to the salmon fishery.

A number of habitat improvements are currently being undertaken by landowners with financial assistance from English Nature (see Section 5.12).

River Wansbeck

The River Wansbeck has developed predominantly into a brown trout fishery as a consequence of both the available habitat, stocking activities, and the management practices of riparian owners and angling clubs. An electric fishing survey, to assess the current status of the brown trout stocks at sites throughout the catchment, has recently been completed. A copy of the report can be obtained from the address on the inside front cover of this report. Rainbow trout which may escape from local reservoirs occasionally inhabit the river.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 16
Environment Agency
0
10km
N
Fish Species Distribution
(Based on Surveys)
KEY
Area Boundary
Watercourse
Built up area
Brown Trout
Migratory and Brown Trout
Salmon and Trout
Salmon, Trout and Coarse Fish
Trout and Coarse Fish
Coarse Fish
No Fish Recorded
Obstructions
Berwick upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
North Sea
Alnwick
Coquet Island
Amble
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
River Till
River Aln
River Coquet
River Blyth
River Wansbeck
River Font
Fontburn Reservoir
NT 00 NU
NU 00 NZ
NT 00 NY
NY 00 NZ

A small run of sea trout, believed to be 300-400 fish, and a lesser number of salmon enter the river every year. Two significant dams exist close to Morpeth and present difficulties for migratory fish as they are passable only in certain water flow conditions. Upstream migration is only possible as far as Highford Dam at Mitford which is regarded as impassable to migratory fish in all river flow conditions.

A number of other obstacles exist upstream of Mitford but would be passable to migratory fish at most flow levels if Highford Dam was to incorporate a fish pass. Several of the principal tributaries contain obstacles to fish passage, the most notable being Fontburn Dam which has no fish pass, however the potential loss of spawning grounds above the reservoir is minimal.

The fishery potential of the River Font is also influenced by Highford Dam and no migratory salmonids are believed to be present in the watercourse. The findings of the juvenile salmonid surveys reveal generally low salmonid densities, supporting the theory that the majority of migratory fish are unable to ascend Highford Dam.

Each year, local angling clubs introduce several thousand hatchery-reared brown trout to the river system in order to supplement the natural stocks and provide more consistent sport for the anglers.

River Lyne

The River Lyne is not generally regarded as a fishery of sport value although brown trout are present in small numbers. Minor species, including minnows and sticklebacks, form the majority of the fish population. The water quality of the river is affected by run-off from opencast mining, resulting in high suspended solid levels within the water which together with very low summer flows, prevents the establishment of significant fish populations. An obstacle to migration exists near the mouth of the River Lyne.

The status of Chevington Burn has recently changed due to the reclamation of the Chevington opencast sites which resulted in a number of major alterations to its course and discharge point into the sea. Little information exists regarding the fisheries potential of the burn and the adjoining Coldrife/Ladyburn Lake into which it flows.

River Blyth

Estuarine fisheries surveys from the estuary mouth to the Kitty Brewster Bridge, and to a small degree in the Sleek Burn tributary, commenced in 1990. The main channel, downstream of Blyth Power Station, supports a relatively diverse estuarine fish community. Some coastal species such as the thornback ray have been recorded here. Resident estuarine fish, such as flounder and viviparous blenny, are found throughout the Blyth estuary, although there have been no sand gobys recorded since 1991.

The lower reach of the Sleek Burn and the area alongside the Cramlington sewage discharge, support a fish community that reflects the greater freshwater input. Flounder are one of the few species able to tolerate this salinity regime. Stickleback, which are common in a wide range of salinities, are also found here and at no other estuarine sample site. Stickleback are often the only fish species able to survive in rivers with a large sewage input.

The main freshwater reaches of the River Blyth, and its tributaries, support populations of coarse fish and eels. Grayling are abundant throughout the lower reaches of the catchment. Juvenile and adult trout are present throughout much of the catchment. No salmon have ever been recorded by the Agency and the juvenile trout densities are generally low by comparison with other similar river systems. Improvements to Humford Dam, which was a major obstruction to fish passage, have recently been carried out which will allow fish passage under almost all flows. In many areas, the populations of wild brown trout are supplemented by the regular stockings of brown trout in the Rivers Blyth and Pont, carried out by angling clubs.

Although Seaton Burn and Brierdene Burn have not been surveyed for fish populations, it is known that the stretch between Big Waters and Little Big Waters supports a coarse fish population. It is unlikely that any other stretches of the burns support significant fish populations of sport value, due to their size and relatively poor water quality. Brierdene Burn is also recorded impassable to migratory fish due to a culvert in its lowest reach.

Stillwaters

There are several stillwater fisheries in the LEAP area. These include coarse fisheries as well as stocked trout. Big Waters, in particular. is a renown coarse fishing stillwater. The Agency carries out stillwater surveys and can provide fisheries advice and management assistance on request.

5.12 Landscape and Nature Conservation

General

All functions of the Agency have duties under the Environment Act 1995 towards landscape and nature conservation. Conservation needs to be considered in undertaking all Agency works and advice is available both internally and externally.

Under Section 8 of the Environment Act 1995 the Agency has a duty to consult English Nature over any works likely to affect Sites of Special Scientific Interest, and the National Park Authority over any work in a National Park.

In addition to this specific legislation the Agency is required to comply with other wildlife legislation such as the Wildlife and Countryside Act 1981 and the European Habitats Directive.

In order to undertake its conservation duties effectively the Agency must liaise with a variety of organisations, such as, local authorities, national parks, English Nature, County Wildlife Trusts and the Royal Society for the Protection of Birds. Between 1989 and 1993 the former National Rivers Authority undertook a programme of River Corridor Surveys for all rivers in the LEAP area. These surveys provide information on habitat type alongside watercourses and within 50 metres to either side, and act as a baseline against which the impact of proposed works can be judged. We have recently developed a technique called River Habitat Survey which provides an inventory of physical features along watercourses enabling the importance of these features to be assessed in a national context.

The Agency has a major role to play in the implementation of the UK Biodiversity Action Plan. This is an international agreement made by the UK Government at the Earth Summit in Rio in 1992. The Agency has been allocated as the lead agency or contact for the conservation of the otter, water vole, freshwater pearl mussel, and native crayfish.

The Agency is both a 'relevant' and a 'competent' authority under the European Habitats Directive. This requires us to be aware of sites of conservation importance on a European scale, to be designated as Special Areas of Conservation (SAC). The Directive also applies to sites designated as Special Protection Areas (SPAs) under the Birds Directive. Within these areas we must ensure that their 'favourable conservation status' is retained when undertaking or authorising any works. In addition the Agency is required to review all consents affecting these areas between 1998 and 2004.

Section 6 of the Environment Act 1995 the Agency has a duty to:

- promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and of land associated with such waters;
- the conservation of flora and fauna which is dependent on an aquatic environment.

It is up to the Agency to decide to what extent it undertakes this duty which clearly covers all land dependent on water, including ponds, wetlands and coastal areas.

Section 7 of the Environment Act 1995 the Agency has a duty to:

- further the conservation and enhancement of natural beauty and the conservation of flora, fauna and geological or physiographical features of special interest in carrying out all functions other than its pollution control functions;
- have regard to the desirability of conserving flora, fauna and geological or physiographical features of special interest in carrying out its pollution control functions.

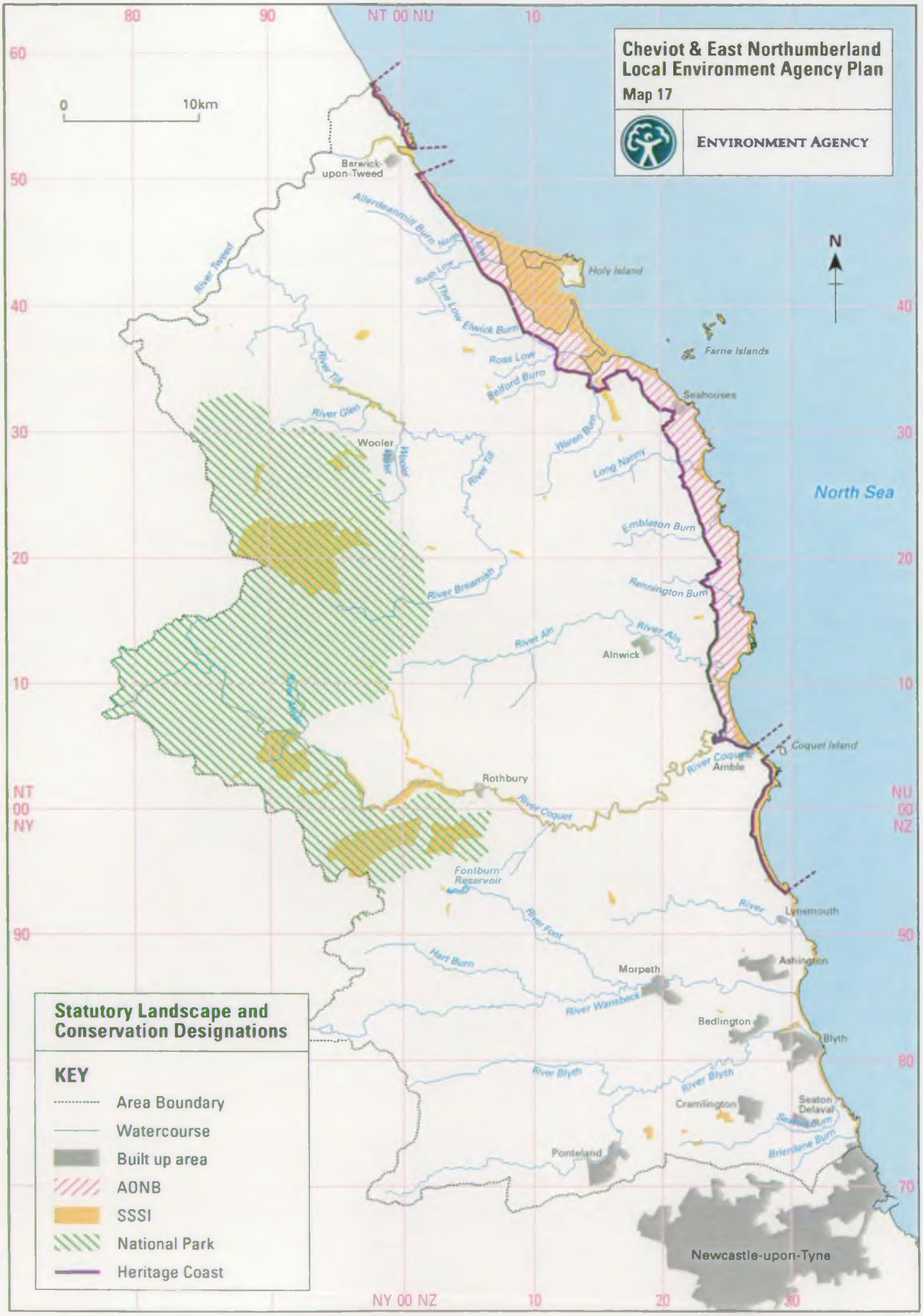
The Agency needs to be aware of initiatives being undertaken by other Government agencies in the countryside. Of particular importance are English Nature's Natural Areas Programme and the Countryside Commission's Countryside Character Programme. There is a role for the Agency in assisting with the implementation of those proposals within its remit.

Local Perspective

River Tweed

The Rivers Tweed and Till are excellent clean river systems of high conservation and ecological value. Bankside habitats are diverse and include a number of lengths of woodland and numerous sandy 'cliffs' providing suitable nesting sites for sand martins and kingfishers.

Within the River Tweed catchment there are several Sites of Special Scientific Interest (SSSIs). These sites have been identified for a number of reasons but the principal habitats protected are rivers, wetlands, geological sites and the estuary. The whole of the River Tweed on the Scottish side of the


Cheviot & East Northumberland
Local Environment Agency Plan
Map 17
Environment Agency
0
10km
N
Statutory Landscape and
Conservation Designations
KEY
Area Boundary
Watercourse
Built up area
AONB
SSSI
National Park
Heritage Coast
North Sea
Berwick upon Tweed
Holy Island
Farne Islands
Seahouses
Wooler
Alnwick
Coquet Island
Amble
Rothbury
Fontburn Reservoir
Lynemouth
Morpeth
Ashington
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
River Till
River Glen
River Breamish
River Aln
River Coquet
River Font
Hart Burn
River Wansbeck
River Blyth
Allerdeanmill Burn
Ross Low
Belford Burn
Ewick Burn
Waren Burn
Long Nanny
Embleton Burn
Rennington Burn
NT 00 NU
NT 00 NY
NU 00 NZ
NY 00 NZ

border was notified as a SSSI under the National Parks and Access to the Countryside Act 1949, but has yet to be renotified under the Wildlife and Countryside Act 1981. If this renotification takes place it is likely that the site will be extended to cover the English part of the River Tweed catchment.

The River Tweed estuary was designated a SSSI in 1988 for mute swans. Approximately 600 swans (about 3.6% of the British population) are present in late summer/ early autumn, including non-resident birds drawn from a wide area. In the past there have been some problems with oil pollution in the estuary which, if re-occurring, would particularly threaten the bird populations. An Oil Spill Contingency Plan for the River Tweed estuary has been developed to assist in minimising the effects of any such incident.

The Rivers Till and Tweed are regularly used by otters, and there are several records of otters breeding in the catchment. The North Northumberland Otter Project has been working since 1989 to survey the distribution of otters and to undertake practical habitat improvements in the River Till catchment. This project, jointly funded by the Northumberland Wildlife Trust and the Agency, has a committee of local landowners who assist in steering and promoting the project (see Issues 21 and 24).

There are historical reports of pearl mussels being present in the River Till catchment, although recent surveys have not confirmed this.

River Aln and Coastal Streams

The River Aln is a clean river system of high conservation and ecological value. With the exception of the upper part of the main river and some larger tributaries, where gradients are steeper, it follows a gently meandering course eastwards through agricultural land.

Biological quality is generally very good or excellent upstream of Alnwick, but downstream from the town the freshwater fauna is rather poorer than expected. This reflects the impact of urban inputs, primarily of an organic nature.

In the coastal plain to the north there are naturally eutrophic lowland streams with a fauna rich in molluscs and sediment and filter feeding invertebrates. The Lows, which flow into the Lindisfarne National Nature Reserve, are heavily engineered drainage channels of generally limited ecological value. There is considerable scope for improvement through altering mowing regimes and selected tree planting or wetland creation, where this does not conflict with their flood defence function.

The Waren Burn is generally good in terms of its diversity of habitats, but some localised habitat creation would be beneficial.

The Long Nanny is fringed by a variety of habitats, but most are common and of limited conservation value. There is scope for the creation of further channel features, such as pools and low-lying berms.

The River Aln is regularly used by otters, and there are occasional records of otters breeding in the catchment. An initial habitat assessment has been undertaken by the Northumberland Otter Project and has shown the habitat to be generally good with several opportunities for improvement. Otters have been occasionally reported on the coastal streams.

River Coquet

The River Coquet is excellent for wildlife, recognised by the notification of the whole river as a Site of Special Scientific Interest (see Map 17). Bankside habitats change from woodland fringed lower river and wooded lowlands, to the hay meadows, herb rich valleys and gravel haughs of lower Coquetdale, to the upper moorlands of the Cheviots. As part of a national initiative the Agency has been working with English Nature to prepare a Conservation Strategy and a joint approach to consenting works in the river.

The main river supports a healthy and diverse invertebrate fauna of mayflies, stoneflies caddis flies and other invertebrates which are sensitive to pollution. Their presence indicates the absence of chronic pollution and the in-stream biology is generally of excellent quality. Although the habitat and water quality are suitable, crayfish have never been found by the Agency, despite reliable reports of their presence at Thropton and Felton in 1981.

Two areas, the Simonside Hills and part of the Cheviot range draining into the Coquet, have been identified by the DoE as being susceptible to acidification due to the poor buffering capacity of soils types. If the capacity of the system to absorb and neutralise acid inputs is exceeded then damage to the ecology of the watercourse will occur. Consequently careful consideration must be given to land use developments, such as forestry schemes, which may exacerbate the problem.

The whole of Upper Coquetdale falls within the Northumberland National Park and most of the southern half is used by the Ministry of Defence for manoeuves. The Otterburn Ranges Conservation Liaison Group, on which the Agency is represented, ensures that this land is managed for the benefit of conservation where possible.

Rivers Wansbeck and Lyne

Although the general landscape is rolling farmland, much of the length of the Rivers Wansbeck and Lyne is in steep sided valleys comprising deciduous woodland, a large proportion of which is thought to be ancient semi-natural woodland.

Fontburn Reservoir has a high nature conservation value, due to the habitat diversity of the adjacent land which includes wet grassland, woodland and small ponds.

Good riparian habitats and the relatively undisturbed nature of the rivers have allowed a healthy otter population to become established.

The River Wansbeck supports a healthy breeding population of the native crayfish, Britain's only native crayfish, in the upper tributaries and down to the tidal limit.

The tidal reaches of the River Wansbeck are truncated by the tidal barrage at North Seaton, resulting in a limited area of inter-tidal flats and sand dunes. The resultant impoundment upstream is of limited ecological value, since only those species of flora and fauna tolerant of extremely variable salinity conditions can survive. These conditions arise from the formation of the weir which is only overtopped by spring tides 10 to 14 times per lunar month.

A number of large opencast coal mines are located within these catchments. Rivers and streams often have to be realigned through or around the site, while disturbance to the drainage patterns may result in changes to the flow regime. Loss of habitat and the truncation of wildlife corridors, even if temporary, will have a serious impact on the local wildlife populations. On the positive side, restoration schemes potentially provide opportunities to create new habitats.

Low flows and channel deepening have led to the deterioration of wetland features. The fen and reed bed communities of the lower valley would benefit from raised water levels and appropriate management.

The DoE has identified parts of the upper Font catchment as being susceptible to acidification due the to poor buffering capacity of the soils. This is a similar situation to that of Simonside Hills described above.

River Blyth

The majority of the freshwater reaches within the Blyth catchment are of good biological quality. The lower and middle reaches of the Rivers Blyth and Pont support a healthy and diverse plant community with an associated fauna of mayflies, caddis-flies, beetles and other invertebrate groups.

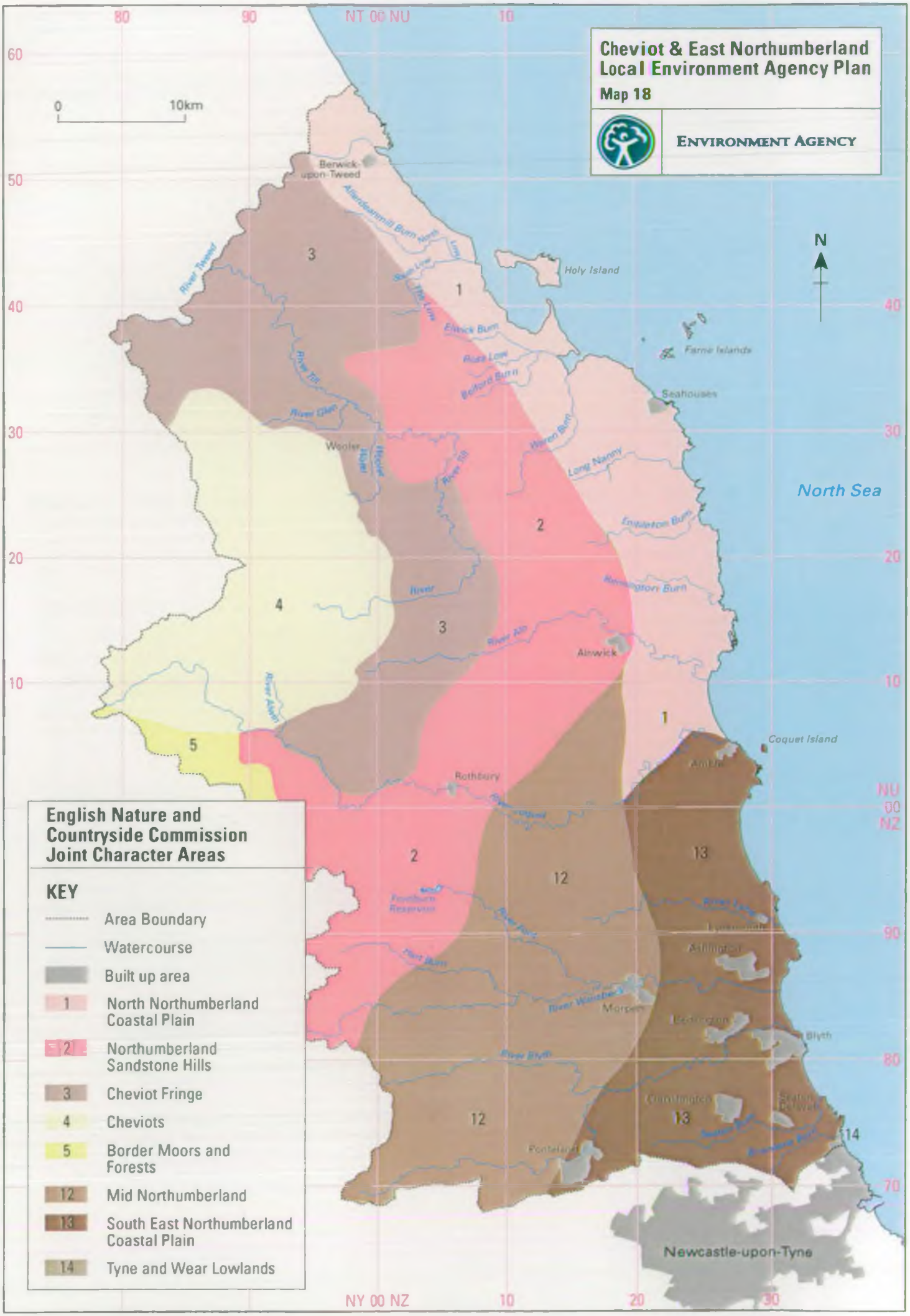
The upper reaches of Sleek Burn, which flows into the north of the Blyth estuary, is of 'poor' biological quality. This improves to 'moderate' in the lower freshwater reaches where some mayfly and caddis-fly larvae exist.

The native crayfish is common in the upper reaches of the Rivers Blyth, Pont and associated tributaries. Streams in the upper reaches are typical of lowland areas and generally support a healthy and diverse flora and fauna.

Sightings of otters have been occasionally reported on the Rivers Blyth and Pont and their presence has been confirmed in recent county-wide surveys. The heavily wooded lengths of river within the catchment should provide good habitat to assist this species to extend its range.

Within the Blyth catchment, SSSIs include Prestwick Carr, for its aquatic fauna and birds, Holywell Pond, for its amphibians, plants and invertebrate life, and, at the top end of Seaton Burn, Big Waters.

Prestwick Carr is an extensive lowland peat basin on the boundary of Northumberland and the City of Newcastle upon Tyne. A large proportion of the area is used by the Territorial Army as a rifle range. Much of the land is now agriculturally improved grazing land which is used by over-wintering wildfowl, particularly in times of flood. Areas not improved remain as grasslands and fenlands which are herb rich in places. The Carr has been altered by drainage which has resulted in the drying of the peat area and an impoverished plant community.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 18
Environment Agency
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10km
N
Berwick-upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
Alnwick
Coquet Island
Rothbury
Ashington
Blyth
Newcastle-upon-Tyne
North Sea
NT 00 NU
NU 00 NZ
NY 00 NZ
English Nature and
Countryside Commission
Joint Character Areas
KEY
Area Boundary
Watercourse
Built up area
1 North Northumberland Coastal Plain
2 Northumberland Sandstone Hills
3 Cheviot Fringe
4 Cheviots
5 Border Moors and Forests
12 Mid Northumberland
13 South East Northumberland Coastal Plain
14 Tyne and Wear Lowlands

Northumberland Coast

The coastal waters of Northumberland support a diverse range of plants and animals which have adapted to what can be a harsh environment, and where the most important influences are generally wind, tidal action and current. In Northumberland, the coastline has remained relatively untouched by the activities of people resulting in a haven for wildlife and a landscape of high natural beauty.

The Lindisfarne National Nature Reserve is particularly important for mudflats which provide a food supply of invertebrates to support internationally important bird populations. Also important in this area are the subtidal sediment communities off Budle Bay.

A full range of benthic communities is represented in the area, in association with substrate types ranging from rock to mud. Effects of inputs from coastal discharges and estuaries are thought to be generally localised due to rapid dispersal by wind, tide and current action, although no comprehensive studies have been undertaken to confirm this.

A number of important sea-bird colonies are found on the islands off the coast and the cliffs and rocky shores of the mainland. The most important sites are the Farne Islands and Coquet Island, which are important for breeding terns and eiders respectively.

There is anecdotal evidence that sea birds are sometimes caught in fishing gear, particularly gill nets, but little research has been undertaken locally on the impact of the nets used. The licensed salmon net fisheries are thought to have little impact, but some concern has been expressed over seabirds caught by nets used illegally. In general, breeding populations of seabirds have increased during the last two decades although most of this increase appears to have occurred prior to 1980.

British waters contain approximately 40% of the world population of grey seals. Breeding populations of both common and grey seals are found off the north east coast of Britain and one of the country's largest breeding colonies of grey seals (4-5000 in number) is found on the Farne Islands. Common seals are comparatively rare at the Farne Islands, but there are reports of some individuals breeding there.

Whales, dolphins and porpoises are present in Northumbrian coastal waters with the most frequent being the common or harbour porpoise.

The sites of greatest international importance are Lindisfarne National Nature Reserve, which has been designated as a wetland of international importance under the Ramsar Convention and a Special Protection Area under the EU Directive for the Protection of Wild Birds, and the Farne Islands, also designated as a National Nature Reserve and a SSSI for their important populations of breeding birds and marine mammals. Lindisfarne and the Farne Islands have been identified as a Sensitive Marine Area by English Nature.

The whole of the Northumberland Shore, from the Scottish Border to Tynemouth, is currently notified as a SSSI (see Map 17) and is thought to be of sufficient importance to meet the requirements of the Ramsar Convention and the EU Wild Birds Directive. The principal habitats protected are mudflats, sandy beaches, sand dunes, cliffs and cliff-top communities.

Coquet Island is important for breeding birds and is a nature reserve managed by the Royal Society for the Protection of Birds. The island is also notable for its breeding population of eider ducks which is the most southerly colony on the east coast.

The Northumberland Coast Management Plan outlines detailed proposals for the coastal area but proposals relating to its waters are less detailed.

Landscape

The main statutory landscape designation within the LEAP area is the Northumberland National Park (see Map 17). In addition the high landscape value of the coast is reflected by its designation as both an Area of Outstanding Natural Beauty (AONB) and a Heritage Coast.

In addition to the statutory designations the Countryside Commission and English Nature are currently developing their joint Countryside Character Programme. The Countryside Commission's Countryside Character Programme considers actions required to maintain and enhance the landscape of areas with distinct landscape character. English Nature's Natural Areas Programme focuses on the management required for areas with distinct habitat types. Wherever possible, English Nature and the Countryside Commission have agreed that their boundaries should coincide and have created a 'new map of England' (see Issue 15 and Map 18 for details of this in the LEAP area).

5.13 Tourism and Recreation

General

Recreation and tourism is a very significant use of the water environment by people. It is now rightly recognised as an industry which plays a vital role in the local economy, even where there is no direct charge for the use of water and associated amenities. Recreation may be of an informal type, eg walking beside water, viewing the scenery and enjoying the fauna and flora, or it may actively involve water as in rowing, sailing and canoeing.

The Agency has a duty to promote the use of water and land associated with water for recreation and to take recreation into account in the performance of all its functions. The Agency can also pass byelaws for purposes connected with carrying out its functions.

The Agency has an important role in liaising with and advising other bodies to ensure that a strategic approach is taken to coordinate the development and management of recreation in a way which allows the optimum potential of individual areas to be realised, as well as for the region as a whole. As an environmental organisation we support developing tourism and recreation in a way which is sustainable for the environment, local economies and the activities themselves.

Access to the rivers and still waters is controlled by landowners, except where public footpaths or bridleways exist. In England there is no legal right to navigate along rivers, except where a right of navigation has been established or in most estuarine waters. In most cases, the riparian owner has ownership of the water to the middle of the river. Consequently, recreational activities are usually controlled through formal or informal agreements with landowners.

Local Perspective

Map 19 shows recreational activities within the LEAP area.

Tourism

Tourism and recreation are already important to the economy of Northumberland, particularly in the rural areas to the north west and along the coast. Visitors are attracted to the unspoilt countryside and spectacular coastline which has many blanket designations including Heritage Coast, Area of Outstanding Natural Beauty and Sites of Special Scientific Interest. The coast has site specific designations too like the National Nature Reserve (NNR) and Ramsar site at Lindisfarne. Birdwatchers are attracted to the NNR as well as many other sites along the coast and inland as far as Caistron, near Rothbury. Birdwatching activity peaks from autumn to spring when thousands of migrating and over-wintering wildfowl boost the resident bird population.

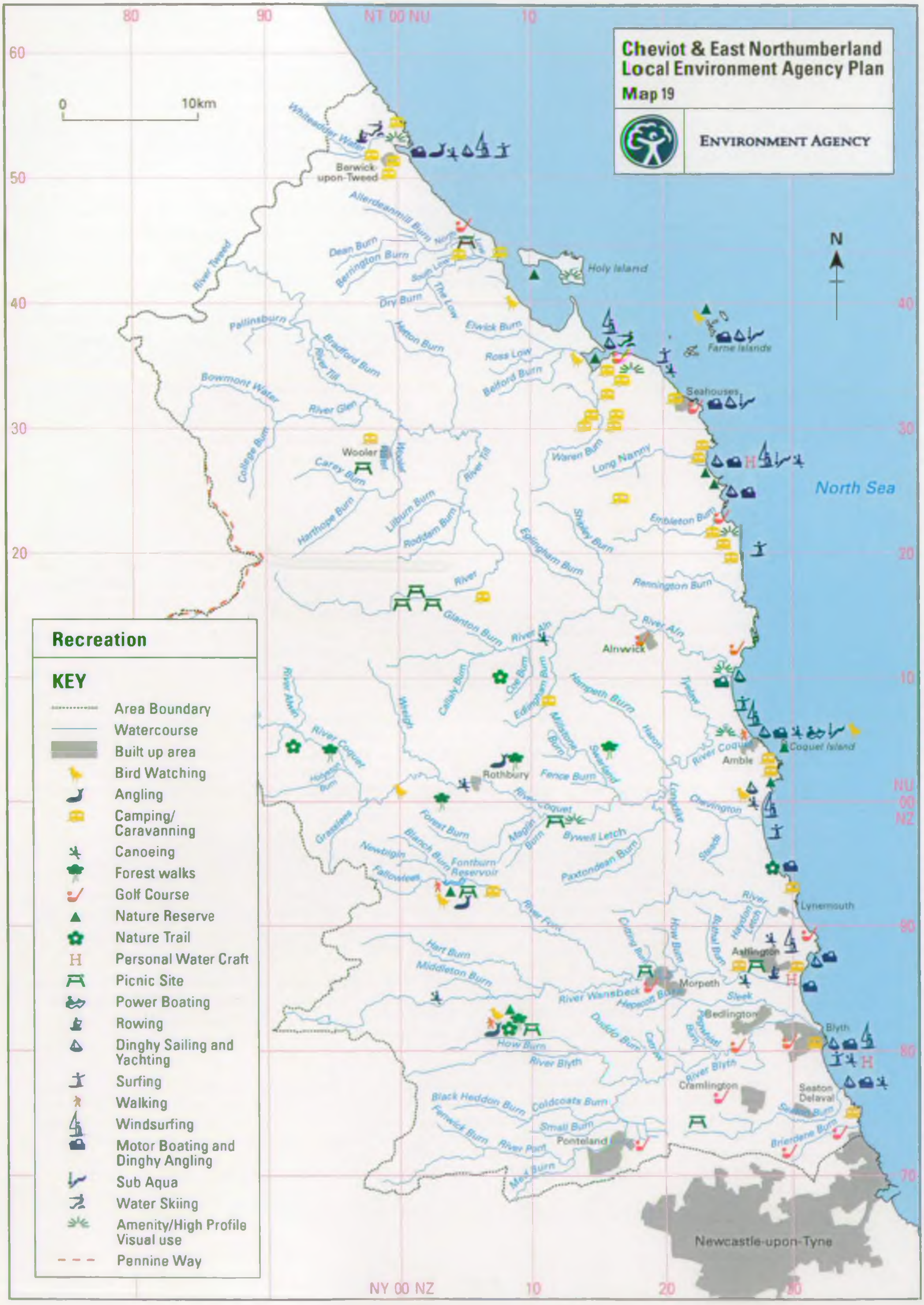
The most popular activity of visitors to the Northumberland coast is walking. Short and long distance walking takes place along the foreshore and on a network of rights of way supplemented by permissive footpaths. The footpath network covers the whole LEAP area and much of the upper catchments of the Rivers Till and Coquet are only accessible by footpaths. The Pennine Way touches the upper catchments of both these rivers but the many shorter walks around the Cheviots and Simonside Hills make the west of the area a popular venue for hill and fell walking.

Some popular short walks focus on water as a key feature of the landscape in public amenity sites at Alnwick, Rothbury, Brinkburn Priory, Morwick Hall, Warkworth, Morpeth town centre, Ashington Riverside Park and Plessey Woods Country Park. At Bolam Lake Country Park the Agency and Northumberland County Council have jointly funded improvements to access facilities, to create a route for disabled users right around the lake. This will allow everyone to enjoy the beautiful water amenity regardless of their mobility or age.

Watersports

Canoeing is practised at several inland sites including some stretches of rivers for example, Rothbury to Felton on the Coquet. Access to the River Tweed itself is covered by Scottish law but all of the other rivers in the LEAP area, (including the River Till and its tributaries), are covered by English law. This means that access on non-tidal waters is by permission of the landowner. No general canoe access agreement exists.

Of the inland lakes, Ladybum, in the Druridge Bay Country Park is used for canoeing, windsurfing and waterskiing (although waterskiing will not be allowed on Ladybum Lake from 1st October 1997). The lake is a popular amenity for birdwatchers and other visitors to the park and its use for non-motorised water sports is expected to increase in future. The QE II lake is becoming increasingly popular for windsurfing as well as general amenity use, whilst the Wansbeck amenity lake is used by the very successful Cambois rowing club and has the potential to accommodate a range of water sports.



Cheviot & East Northumberland
Local Environment Agency Plan
Map 19
ENVIRONMENT AGENCY
Recreation
KEY
Area Boundary
Watercourse
Built up area
Bird Watching
Angling
Camping/ Caravanning
Canoeing
Forest walks
Golf Course
Nature Reserve
Nature Trail
Personal Water Craft
Picnic Site
Power Boating
Rowing
Dinghy Sailing and Yachting
Surfing
Walking
Windsurfing
Motor Boating and Dinghy Angling
Sub Aqua
Water Skiing
Amenity/High Profile Visual use
Pennine Way
0
10km
N
North Sea
Berwick-upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
Alnwick
Rothbury
Amble
Coquet Island
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
Whiteadder Water
Allerdeanmill Burn
Dean Burn
Berrington Burn
Dry Burn
The Low
Pallinsburn
Bradford Burn
River Till
Bowmont Water
River Glen
Elwick Burn
Ross Low
Belford Burn
Hetton Burn
College Burn
Carey Burn
Harthope Burn
Lilburn Burn
Roddam Burn
Waren Burn
Long Nanny
Embleton Burn
Shipley Burn
Eglingham Burn
Rennington Burn
Glanton Burn
River Aln
Callaly Burn
Coe Burn
Edlingham Burn
Hampeth Burn
Tyelaw
River Alwin
River Coquet
Forest Burn
Fence Burn
Chevington
Bywell Letch
Paxtondean Burn
Fontburn Reservoir
Fallowlees
Newbigin
River Font
Hart Burn
Middleton Burn
River Wansbeck
How Burn
River Blyth
Black Heddon Burn
Coldcoats Burn
Small Burn
River Pont
Fenwick Burn
Mead Burn
Seaton Burn
Brierdene Burn
Sleek
60
50
40
30
20
10
NT 00 NU
NY 00 NZ
NU 00 NZ
80
90


Cheviot & East Northumberland
Local Environment Agency Plan
Map 20
ENVIRONMENT AGENCY
Angling Activity
KEY
Area Boundary
Built up area
Migratory Fish and Brown Trout
Brown Trout and Coarse Fish
Brown Trout Only
Brown Trout and Sea Trout
Unclassified
Obstructions
0
10km
N
North Sea
Berwick-upon-Tweed
Whiteadder Water
River Tweed
Allerdeanmill Burn
Dean Burn
Berrington Burn
North Low
South Low
The Low
Dry Burn
Flood Barrier
Flood Barrier
Haggerston Castle
Holy Island
Farne Islands
Seahouses
Pallinsburn
Bradford Burn
River Till
Hetton Burn
Elwick Burn
Ross Low
Bedford Burn
Flood Barrier
Bowmont Water
River Glen
Wooler
Wooler Water
College Burn
Carey Burn
River Till
Waren Burn
Twizell Mill
Long Nanny
Harthope Burn
Lilburn Burn
Roddam Burn
Shipley Burn
Edlingham Burn
Embleton Burn
Rennington Burn
River
Glanton Burn
River Aln
Eslington Park
Alnwick
River Aln
Rowhope Burn
Usway Burn
River Alwin
Callaly Burn
Coe Burn
Edlingham Burn
Hampeth Burn
Tyelaw
Wreigh
Hazon
Ridlees Burn
Barrow Burn
River Coquet
Holystone Burn
Mallstone Burn
Swarland
Coquet Island
River Coquet
Amble
Rothbury
Fence Burn
River Coquet
Longdike
Chevington
Grasslees
Forest Burn
Maglin Burn
Bywell Letch
Newbigin
Blanch Burn
Fontburn Reservoir
Paxtondean Burn
Steads
Fallowlees
Fontburn
River Font
River
Lynemouth
Hayden Letch
Bothal Burn
How Burn
Cotting
Ashington
Hart Burn
Middleton Burn
High Ford
Morpeth
Hepscott Burn
Sleek
Sweethope Loughs
River Wansbeck
Bedlington
Blyth
How Burn
Dodds Burn
Catraw
Pegswood Burn
Ham Ford
Humford
River Blyth
Stannington
Seaton Delaval
Black Heddon Burn
Coldcoats Burn
River Blyth
Cramlington
Seaton Burn
Fenwick Burn
Small Burn
River Pont
Ponteland
Brierdene Burn
Med Burn
Newcastle upon Tyne
NT 00 NU
NY 00 NZ
NT 00 NY
NU 00 NZ
80
90
10
20
30
60
50
40

The River Lyne is limited to a small brown trout fishery although sea trout have occasionally been reported. The River Lyne has been surveyed in previous years when small numbers of brown trout redds were recorded in 1994 in the middle reaches of the river.

River Blyth

Angling occurs throughout the catchment and is primarily for brown trout, although the river has runs of salmon and sea trout. No migratory fish have been reported caught by rod and line since 1960.

There is a good population of grayling in both the Rivers Blyth and Pont, and other coarse fish are known to be resident in the River Blyth, with small numbers of dace, chub, carp, pike, perch and gudgeon recorded. Most of the stillwaters in the catchment area have a good and varied population of coarse fish and are generally well maintained by angling associations.

Sea/Coastal Fisheries

The Agency has no jurisdiction over sea and coastal fisheries (other than salmon and migratory trout - see below). The Northumberland Sea Fisheries Committee has jurisdiction for managing the sea and coastal fisheries and covers Northumberland to the mouth of the River Tyne, operating from Blyth. The Agency and the SFC work together using a system of 'cross-warranting' to protect the coastal/sea and salmonid fisheries.

Salmon and Migratory Trout

A fishery for the capture of migratory salmonids has been in existence along the east coast of England for over one hundred years. The Agency carries out enforcement under the Salmon and Freshwater Fisheries Act 1975, the Environment Act 1995, and fisheries byelaws both along the coast and six miles out to sea. This is achieved by frequent sea patrols by our fisheries patrol vessel. Working in conjunction with the vessel are land-based Fisheries Inspectors who collect and pass on information and enforce the law along the beach and inland areas.

We issue net fishing licences which provide strict rules to be followed by the netsmen who are licensed to fish for salmon and migratory trout by means of drift net and/or T-net. The byelaws include restrictions on the length of net and mesh sizes, annual weekly and nightly close times and conservation areas, called 'playgrounds', around the mouths of the River Coquet and River Wansbeck where drift net fishing is prohibited. Strictly controlled T-netting is, however, permitted within the outer playground area of the River Coquet but is prohibited within the smaller, inside area. All licensees are required to submit catch returns detailing the numbers and weights of salmon and sea trout taken.

Net limitation orders are a further means of regulating fishing by limiting the number of licences issued. Such orders, currently made under Section 26 of the Salmon and Freshwater Fisheries Act 1975, have been in effect in the LEAP area since 1964. The current order, National Rivers Authority - North East Coast (Limitation of Net Licences) Order 1992, is set to reduce the number of drift net licences issued as those currently holding such licences leave the fishery.

Research by the Agency and MAFF into the east coast salmon and trout stocks is continuing. Data will need to be collected for use in the promotion of a new Net Limitation Order when the current Order expires in 2003.

This section relates to Issues 20 and 22.

5.15 Archaeology and Heritage

General

Heritage encompasses the elements of our history which still survive and include examples of buildings and structures which date back to the industrial revolution and archaeological remains from further back in history.

The Agency undertakes a number of works which could have an impact on archaeological and historic features. This needs to be fully taken into account, particularly where works involve ground disturbance.

Under Section 7 of the Environment Act 1995, the Agency was given the following duty:

> "to **have regard** to the desirability of protecting and conserving buildings, sites, and objects of archaeological, architectural, engineering or historic interest".

In addition the Agency is required to take into account the effect of any works on the beauty or amenity of or access to these features.

We do not directly employ any qualified archaeologists and therefore rely on consultations with outside organisations, principally English Heritage, Northumberland National Park, County Councils and District Councils.

We hold a database of Scheduled Ancient Monuments (SAMs) against which we can identify whether any impacts are likely. In the event of works affecting such a site, formal consent will be sought from the Department of National Heritage through English Heritage.

The Northumberland County Council and Northumberland National Park archaeologists hold information on non-statutory sites on the Sites and Monuments Register. Early consultation can assess potential impacts on these sites.

Listed building information is held by District Councils and Northumberland National Park and we will seek advice on impacts on buildings and particularly weirs and bridges which are listed.

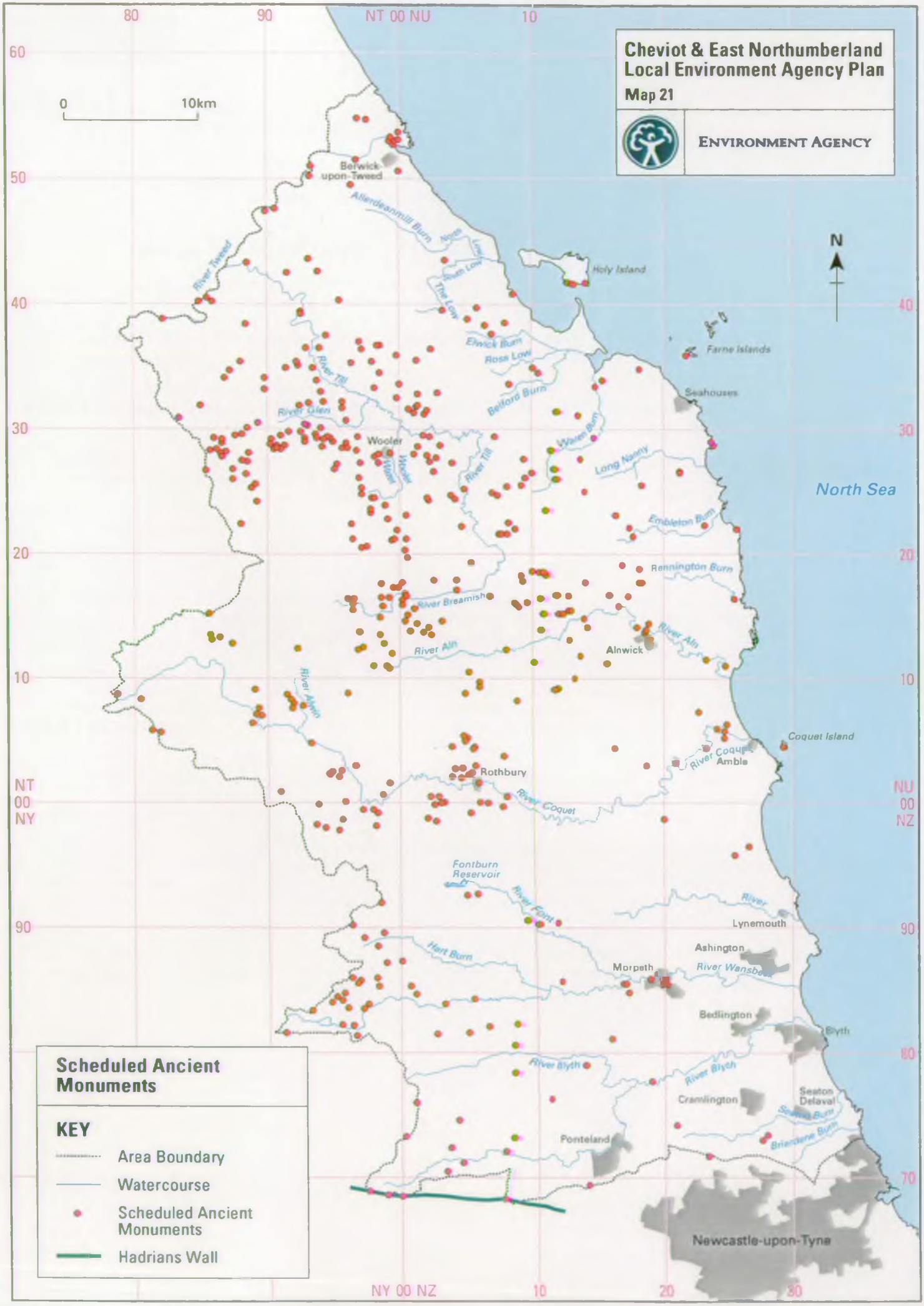
Local Perspective

The county of Northumberland is particularly rich in archaeological remains. Scheduled Ancient Monuments are shown on Map 21. The work in recording sites is undertaken by archaeologists working for the Northumberland National Park, Northumberland County Council and English Heritage. Sites of local importance are recorded on the County Sites and Monuments Register held by the County Council.

Along the Northumberland coast a strategy has been produced to help conserve archaeological remains. This looked at the potential impact of erosion on archaeological remains, made recommendations for different types of site, and made site-specific recommendations for priority sites.

Many of the features remaining are Roman or Medieval settlements and there are a large number of ancient earthworks and standing stones. Many of these features are in remote areas, well away from any watercourse and therefore unlikely to be affected by Agency works. However, there are a number of features, such as bridges and weirs, associated with the watercourses in the LEAP area, which may impinge on the work of the Agency.

There may be opportunities for the Agency to work with others, in particular English Heritage, to protect and improve sites during our work where funds allow. A good example could be working on some environmental education/interpretation projects (see Issue 26).


Cheviot & East Northumberland
Local Environment Agency Plan
Map 21
Environment Agency
0
10km
N
Berwick upon-Tweed
Holy Island
Farne Islands
Seahouses
North Sea
Wooler
Alnwick
Rothbury
Coquet Island
Amble
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
Allerdeanmill Burn
River Till
River Glen
Elwick Burn
Belford Burn
Long Nanny
Embleton Burn
Rennington Burn
River Breamish
River Aln
River Coquet
Fontburn Reservoir
Hart Burn
River Wansbeck
River Blyth
Seaton Burn
Briardene Burn
80
90
NT 00 NU
10
60
50
40
30
20
10
NT 00 NY
90
NU 00 NZ
80
70
NY 00 NZ
10
20
30
Scheduled Ancient Monuments
KEY
Area Boundary
Watercourse
Scheduled Ancient Monuments
Hadrians Wall


Cheviot & East Northumberland
Local Environment Agency Plan
Map 22
ENVIRONMENT AGENCY
Water Quality:
General Quality Assessment
Chemical Grading 1996
KEY
Area Boundary
Built up area
A
B
C
D
E
F
Unclassified
0
10km
N
North Sea
Berwick-upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
Alnwick
Amble
Coquet Island
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
Whiteadder Water
River Till
River Glen
Bowmont Water
College Burn
Wooler Water
Harthope Burn
Lilburn Burn
Roddam Burn
River Breamish
River Aln
River Coquet
River Font
River Wansbeck
River Blyth
River Pont
Fontburn Reservoir
Embleton Burn
Long Nanny
Waren Burn
Elwick Burn
Ross Low
Belford Burn
Hetton Burn
Pallinsburn
Bradford Burn
Edlingham Burn
Shipley Burn
Glanton Burn
Callaly Burn
Coe Burn
Hampeth Burn
Tyelaw
Longdike
Chevington
Blanch Burn
Forest Burn
Fence Burn
Bywell Letch
How Burn
Hart Burn
Middleton Burn
Hepscott Burn
Sleek Burn
Coldcoats Burn
Small Burn
Black Heddon Burn
Fenwick Burn
Med Burn
Seaton Burn
Brierdene Burn
NT 00 NU
NY 00 NZ
NT
00
NY
NU
00
NZ

6 State of the Environment

6.1 Water - Quality and Quantity

Water Quality

The quality of surface water is evaluated in a number of ways against a range of statutory and non-statutory standards (detailed information on all of these standards is given in Appendix 7.2):

(a) ***Rivers Ecosystem (RE) Classification, General Quality Assessment (GQA) and NWC Estuary Classification Systems***

A scheme for the implementation of a new system for setting statutorily based Water Quality Objectives (WQOs) was approved by the Government in April 1994. This new system is use-related. The core of the WQO system, known as the Rivers Ecosystem (RE) classification, is specifically linked to the ecological 'use' of freshwaters. The definition of the RE classes in chemical terms can be equated with the broad description, with particular reference to the fish population that could be expected to be supported by the ecosystem:

Class RE1:	Water of very good quality (suitable for all fish species)
Class RE2:	Water of good quality (suitable for all fish species)
Class RE3:	Water of fair quality (suitable for high class coarse fish populations)
Class RE4:	Water of fair quality (suitable for coarse fish populations)
Class RE5:	Water of poor quality (likely to limit coarse fish populations)
No class:	Water of bad quality (in which fish are unlikely to be present)

The classification system allows for the setting aside (called derogation) of low pH values and elevated zinc and copper levels that arise from natural sources. Where such values are encountered they have been disregarded in assessing compliance with target. This derogation allows suitable discharge consent conditions to be set so as to maintain the highest water quality possible under the natural conditions.

Provisional target RE classes have been set up for the Rivers Till, Aln, Coquet, Wansbeck, Blyth and their tributaries. These are currently non-statutory. Map 23 shows the stretches of river currently significantly failing their provisional RE target. These are discussed in Issue 3 of Part I.

In addition to the WQO scheme there is a system for river quality assessment known as the General Quality Assessment (GQA). Every five years a 'snapshot' of the overall state of the catchment will be produced using a variety of chemical, biological and aesthetic factors. The GQA scheme has been published by one of our predecessor authorities, the National Rivers Authority, in the Water Quality series report No 19 "*The Quality of Rivers and Canals in England and Wales (1990 to 1992)*". The chemical criteria for the GQA are given in Appendix 7.2. Map 22 shows the current GQA classes for the rivers within the LEAP area.

For the assessment of the water quality in estuaries, the Agency uses the NWC Estuary Classification System, which was adopted in 1980. The classification system is based on the recommendations of the Classification of Estuaries Working Party which reported to the DoE and NWC Standing Technical Advisory Committee on Water Quality. The classification aims to provide a simple assessment of the status of estuaries. The Blyth estuary currently fails its NWC target. This issue is dealt with in Issue 4.

(b) ***European Commission (EC) Directives***

The introduction of European Commission (EC) Directives from 1976, intended to protect the water environment, has had a significant impact on water quality issues. The United Kingdom (UK) Government has adopted the Directive requirements, incorporating them into UK legislation: they are thus statutory targets. As the nominated 'competent Authority', relevant annual reports are made by the Agency to the Department of the Environment (DoE) for fresh and saline waters using results from a comprehensive sampling and analysis programme specific to each relevant Directive. Where waters do not comply with the standards set out in each Directive, the Agency is required to develop improvement plans on behalf of the DoE to ensure that the situation is remedied within a defined timescale.

Directives which apply to the catchments within the Cheviot and East Northumberland LEAP are:

- ***The Dangerous Substances Directive (76/464/EEC)*** which sets numerical standards (Environmental Quality Standards (EQS)) which must be achieved in all waters for identified substances which are particularly harmful to the water environment. New substances can be added to the lists by the EC as new environmental initiatives are introduced.


Cheviot & East Northumberland
Local Environment Agency Plan
Map 23
ENVIRONMENT AGENCY
Water Quality: Provisional Long Term River Ecosystem Targets and Significant Failures
KEY
Area Boundary
Watercourse
Built up area
Significant Failure
Unclassified
RE ( )
Provisional Long Term RE Targets with Target Date in brackets where applicable alongside the RE( )
0
10km
N
North Sea
Berwick upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
Alnwick
Amble
Coquet Island
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
Whiteadder Water
River Tweed
Allerdeanmill Burn
Dean Burn
Beringtion Burn
South Low
The Low
Dry Burn
Pallinsburn
Bradford Burn
River Till
Hetton Burn
Elwick Burn
Ross Low
Belford Burn
Bowmont Water
River Glen
College Burn
Carey Burn
Wooler Water
Waren Burn
Long Nanny
Harthope Burn
Lilburn Burn
Roddam Burn
Embleton Burn
Edlingham Burn
Rennington Burn
River
Glanton Burn
River Aln
Callaly Burn
Coe Burn
Hampeth Burn
Hazon
Tyelaw
River Coquet
Ridlees Burn
Barrow Burn
Holystone Burn
Fence Burn
Swarland
Forest Burn
Chevington
Grasslees
Newbigin
Blanch Burn
Fontburn Reservoir
Fallowlees
Bywell Letch
Paxtondean Burn
River Font
Hart Burn
Middleton Burn
How Burn
River Wansbeck
Hepscott Burn
Sleek
River Blyth
Black Heddon Burn
Coldcoats Burn
Fenwick Burn
River Pont
Small Burn
Mad Burn
Seaton Burn
Brierdene Burn
RE3 (2005)
RE3 (2001)
RE3(2005)
RE4(2002)
RE2
RE2 (1998)
RE3(2005)
RE4 (2005)
NT 00 NU
NY 00 NZ
80
90
10
20
30
60
50
40

- ***The Freshwater Fisheries Directive (78/659/EEC)*** which requires that where freshwater rivers are designated as suitable for salmonid or cyprinid fish populations, then the water quality standards set out in the Directive must be met. Current designations are shown on Map 24. New designations may be made by notification to DoE.

- ***The Surface Water Abstraction Directive (75/440/EEC)*** which ensures that water abstracted from rivers or reservoirs for drinking water purposes achieves set standards, prior to treatment and distribution to public supply. Formal arrangements are in place between the water undertakers and the Agency to address non-compliance.

- ***The Bathing Water Directive (76/160/EEC)*** designates waters which are regularly used by the public for bathing purposes and must comply with microbiological standards. Where failures are recorded, improvement plans must be developed.

- ***The Urban Waste Water Treatment Directive (91/271/EEC) (to be implemented in the UK by the year 2005)*** which applies to discharges of domestic sewage and certain industrial discharges made into fresh and saline waters. Standards are set down for discharge quality and levels of treatment are specified according to the size of discharge and to the characteristics of the receiving water. The Directive also seeks to apply more stringent effluent standards to discharges into 'sensitive' waters and may require the addition of tertiary treatment to remove nutrients.

- ***The Shellfish Waters Directive (79/923/EEC)*** was adopted in 1979 and lays down the requirements for the quality of designated waters which support shellfish (defined as bivalve and gastropod molluscs). The Agency is the competent regulatory body overseeing this Directive. Of the 18 waters designated in England and Wales, Holy Island in north Northumberland is the only designation in this LEAP area.

- ***The Shellfish Hygiene Directive (91/942/EEC).*** In January 1993 the 'Shellfish Hygiene Directive' was adopted setting standards for the production and placing on the market of live bivalve molluscs. Responsibility for the implementation of this Directive lies with the Environmental Health department of the relevant local authorities. Berwick upon Tweed Borough Council is the authority which oversees the Holy Island site and they maintain close operational links with the Agency with respect to these two 'Shellfish' Directives.

Failures to comply with EC Directives within the Cheviot and East Northumberland LEAP area are highlighted in Issues 3 and 4 in Part 1.

(c) ***Other National and International Initiatives***

Since 1987 the UK has adopted national and international initiatives aimed at the reduction of pollution loads which have focused mainly on discharges to 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.

The Agency has progressed the Paris Commission and Red List programmes, in conjunction with Directive work and other pollution prevention measures, and makes annual reports to the DoE on the loads discharged. Progress has been made with load reductions in the Northumbria Area by the issue of consent conditions for appropriate discharges to achieve a 50-70% reduction over the period 1985-1995.

Sites monitored in the LEAP area for these purposes are (see Map 24):

- River Wansbeck at Sheepwash;
- Newbiggin Long Outfall;
- Lynemouth Coal Preparation Plant.

(d) ***Biological Quality***

Water quality also assessed biologically by sampling the invertebrate fauna that lives amongst the sediments on the river or estuary bed. The Agency has set up a programme to undertake a freshwater biological survey at least every five years. Invertebrate fauna give essential information as they:

- are generally unable to move far and are affected by surrounding water quality;

- have relatively long life spans and can reflect the situation over time;

- are selectively sensitive to different types of pollution;


Water Quality-
EC Directives
KEY
Area Boundary
Watercourse
Built up area
Cheviot & East Northumberland
Local Environment Agency Plan
Map 24
ENVIRONMENT AGENCY
N
0
10km
North Sea
Holy Island
Farne Islands
Seahouses
Berwick-upon-Tweed
Wooler
Alnwick
Rothbury
Coquet Island
Amble
Morpeth
Ashington
Bedlington
Blyth
Cramlington
Seaton Delaval
Newcastle-upon-Tyne
EC Freshwater Fisheries Directive:
Designated Stretches (34)
EC Designated Bathing Beaches:
Beach Name,
Pass/Fail 94, 95, 96
1. Spittal P P P
2. Bamburgh Castle P P P
3. Seahouses North P P P
4. Beadnell Caravan Site P P P
5. Low Newton P P P
6. Alnmouth P P P
7. Warkworth P P P
8. Amble Links P P P
9. Druridge P P P
10. Newbiggin North P P P
11. Newbiggin South P P P
12. Blyth South P P P
13. Seaton Sluice P P P
Surface Water Abstraction
Directive Sites
Dangerous Substances:
List 1 Background Sites
List 1 Sediment Sites
List 1 Water Sites
List 2 Sites


Cheviot & East Northumberland
Local Environment Agency Plan
Map 25
Environment Agency
0
10km
N
NT 00 NU
NY 00 NZ
North Sea
Holy Island
Farne Islands
Seahouses
Berwick-upon-Tweed
Wooler
Alnwick
Amble
Coquet Island
Rothbury
Morpeth
Ashington
Lynemouth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
Whitadder Water
Bowmont Water
River Glen
River Till
River Aln
River Coquet
River Wansbeck
River Blyth
River Font
Biological Water Quality:
General Quality
Assessment
Classification 1995
KEY
Area Boundary
Built up area
Rivers:
A
B
Good
C
D
Fair
E
Poor
F
Bad
Unclassified


Cheviot & East Northumberland Local Environment Agency Plan
Map 26
Environment Agency
Category 1, 2 and 3 Pollution Incidents 1996
KEY
Area Boundary
Watercourse
Category:
1 (1)
2 (13)
3 (95)
Pollution Type:
Oil
Chemical
Sewage
Natural
Agricultural
General
Urban Run-off
Not Known
Fire Water
0
10km
N
North Sea
Berwick-upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
Alnwick
Coquet Island
Amble
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
Whiteadder Water
River Tweed
River Till
River Glen
Bowmont Water
College Burn
River Aln
River Coquet
River Font
River Wansbeck
River Blyth
Fontburn Reservoir
NT 00 NU
NY 00 NZ

- respond to pollution that occurs intermittently or at very low levels which may not be detected by other methods.

A GQA biology scheme is used to interpret this information. Current biological GQA quality of the rivers within the LEAP area is shown on Map 25. There are five classes, Grade "a" denotes excellent biological quality and Grade "f" bad biological quality. Areas of concern are highlighted in Issue 3 in Part 1.

Water Quantity

Specific Targets - River Flow Control

Minimum Maintained Flows (MMF) and Hands Off Flows (HOF) can be set to control river regulation and surface water abstraction. The main difference between the two types of flow is that a HOF has to be maintained only when abstraction is taking place. This means that the flow can be less than the HOF if no abstraction is occurring, whereas the river must always be maintained at or above the MMF. Compensation releases may also have to be made from reservoirs.

Water Quantity - Current Status

The only specific target set in the Cheviot and East Northumberland LEAP is the HOF which is in place at Mitford on the River Wansbeck. This states that if the flow in the river falls below 0.19 m^3/second, Northumbrian Water Ltd's abstraction must cease. In dry years this means that no water is abstracted for several months at a time.

The only reservoir in the LEAP area is operated by Northumbrian Water Ltd at Fontburn. This direct supply reservoir helps support demands from Ashington, Bedlington, Whitley Bay and Tynemouth. The following table summarises the main characteristics of this reservoir.

Name	Watercourse	Capacity ($10^6 m^3$)	Catchment Area (km^2)	Compensation Flow (TCMD)
Fontburn	River Font	3.28	30.3	2.3

Table 4 Main Characteristics of Fontburn Reservoir

Kielder releases indirectly support some of the area usually supplied by Fontburn reservoir and the Mitford abstraction. In dry years, when levels in the Fontburn reservoir are low and the abstraction at Mitford has ceased, flow is reversed in the Font main (which normally carries the potable water supply treated at Fontburn WTW) so that the Bedlington area can be supplied with Tyne-abstracted water. With the availability of water from the regional strategic supply of Kielder, the standard of service to be met by the statutory water supply undertaker (NWL) specify that no restrictions to water supply (hosepipe bans, drought orders etc) will be made. This means that no drought reductions to the compensation flow or HOF are anticipated.

6.2 Land - Flood Defence

Flood Defence Standards of Service

As an aid to decisions on priorities for works the Agency has determined Standards of Service for flood defence 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 that during any year a flood event may occur which exceeds the magnitude for which protection is available or should ideally be provided. For example, a standard of 1:50 means that, for any given year, the likelihood of a flood flow occurring which significantly affects key land use features is one in 50 years or 2% in any one year.

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

Table 5 Flood Defence - Standards of service land use bands and targets

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.

Section 105 Surveys

The Agency has the responsibility under Section 105 of The Water Resources Act 1991 to carry out surveys of all main rivers and ordinary watercourses to provide information on land at risk of flooding. This is a powerful tool when used to gather information to objectively assess works and fulfill flood warning and development control requirements (see Issue 18).

Emergency Response and Levels of Service (see Issue 19)

The Agency recognises 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. We operate a 24 hour, 7 day a week flood warning system that provides a warning service for specific properties and locations that are at risk from flooding or the overtopping and/or breaching of defences. This system utilises rainfall, river level, snow and tidal data together with information supplied directly from the Met Office.

We are the lead authority in disseminating warnings to the Emergency Services, local authorities and the public. This involves the use of specialist technology in addition to the cooperation and assistance of the media and local authorities.

At times of high water levels we patrol defences, operate flood defence structures, remove blockages and carry out any emergency repairs required, using our In-House Emergency Workforce. Within the limits of our resources, assistance is given to the emergency services to alleviate flooding problems by sandbagging.

In order to ensure that timely warnings are issued to the right people, we operate a system of Flood Warning Standards of Service. By defining lengths of river, or reaches, with common land use interests, those areas with a high population concentration can be treated as priority. It is our aim to provide a two hour warning of commencement of flooding, where practicable.

6.3 Air Quality

The air that surrounds us is of great concern to people since we depend on it directly to sustain good health. Air pollution can cause serious problems for those with asthma, bronchitis and other respiratory diseases. Air quality is also an indicator of environmental quality, Air pollutants can damage flora and fauna, buildings and have significant effects on soils and water.

The Agency is only one of a number of regulatory bodies concerned with air quality. Our direct responsibilities with respect to air quality are exercised through the system of Integrated Pollution Control (IPC). This requires the Agency to regulate discharges from some 2,000 of the most polluting industrial processes to not only air, but also water and land. In regulating these processes, specified as Part A processes under the Environmental Protection Act, we monitor the quality of emissions from each site.

The Nature of Air Pollution

The sources of air pollution are many and varied, but arise principally from combustion processes. They can be categorised into domestic, electricity supply, chemical/petrochemical, other industry and road transport, each source contributing different levels of the principal atmospheric pollutants. However, statistics produced by the DoE indicate road transport is the main source of air pollution with respect to black smoke, nitrogen oxides and carbon monoxide, 90% of the latter emanating from the road system.

Release of volatile organic compounds (VOCs) from the chemical/petrochemical industry and from the use of fuels in motor vehicles can give rise to air quality problems. For example, VOCs are released into the atmosphere every time a vehicle is filled with petrol. When tankers discharge fuel to petrol tanks in garages, a method has to be used to transfer vapours released directly back to the tanker.

The main atmospheric pollutants within the LEAP area are as follows:

Oxides of Nitrogen (NOx)

Oxides of Nitrogen are formed by the reaction between nitrogen and oxygen in the combustion process. The main sources are vehicular emissions. The gas is usually released as nitric oxide, which in the presence of sunlight and air can be converted to the more toxic nitrogen dioxide. The gas is an irritant which can cause breathing problems and increase susceptibility to viral infection. Both gases react with water in the atmosphere to form a weak acid or acid rain which damages trees, crops and buildings. They also contribute to global warming (ie they are 'greenhouse' gases).

Sulphur Dioxide (SO_2)

Sulphur Dioxide is both a naturally occurring gas and one produced by human industrial activity. About 20% of the world's atmospheric SO_2 is produced by volcanic eruption. Of the rest, the majority is derived from the combustion of fossil fuels with a high sulphur content, ie coal and heavy oil. Consequently coal and oil burning power stations are the major source of SO_2 along with vehicle emissions. However, with less coal currently being burned in the home, the introduction of the Clean Air Act 1956, and improved technologies to reduce emissions, the release of SO_2 has declined dramatically in the last 40 years. SO_2 contributes to acid rain in a similar way as nitrogen dioxide.

Ozone

Of increasing concern is the increase in both urban and rural levels of ozone. While essential in the upper atmosphere to protect against damaging ultraviolet radiation, the presence of ozone in the lower atmosphere is particularly dangerous for people who suffer from breathing difficulties. Its concentration has increased through human activity in recent years. It is created in complex chemical reactions between oxides of nitrogen and other volatile organic compounds in sunlight. Vehicular emissions are therefore believed to be the major contributor to the ozone problem.

Particulate Matter

Sources of particulate air pollution can be both human or natural. Naturally occurring particulate matter can arise from wind erosion of rocks and soil and plant matter such as pollen. The principal human source is emissions from the combustion of fossil fuels, particularly coal and diesel fuel.

Carbon Monoxide (CO) and Carbon Dioxide (CO_2)

Carbon Monoxide is a colourless and odourless gas which, if inhaled, enters the bloodstream and disrupts the supply of oxygen to the body's tissues causing cardiovascular and respiratory problems. Its largest source is from engine exhausts, particularly cars which are decelerating or stationary.

Carbon Dioxide is also released during fossil fuel combustion. Whilst it is not directly harmful to human health, it is a major greenhouse gas. An average car emits approximately 4 tonnes of CO_2 over an average year's mileage (12,000 miles).


Cheviot & East Northumberland
Local Environment Agency Plan
Map 27
Environment Agency
0
10km
N
Berwick-upon-Tweed
Holy Island
Farne Islands
Seahouses
Wooler
North Sea
Alnwick
Amble
Coquet Island
Rothbury
Lynemouth
Ashington
Morpeth
Bedlington
Blyth
Cramlington
Seaton Delaval
Ponteland
Newcastle-upon-Tyne
River Tweed
River Till
River Glen
River Aln
River Coquet
River Wansbeck
River Blyth
Fontburn Reservoir
Hart Burn
Allerdeanmill Burn
North Low
South Low
The Low
Elwick Burn
Ross Low
Belford Burn
Warren Burn
Long Nanny
Embleton Burn
Rennington Burn
Seaton Burn
Briardene Burn
Air Quality Monitoring Locations
KEY
Area Boundary
Watercourse
Built up area
Known Locations where Air Quality has been monitored

Lead

Lead compounds are released to the atmosphere in minute particles during the combustion of leaded petrol. During the 1970s and early 1980s research showed that its presence in the air could result in retarded learning or even brain damage, especially amongst children. Consequently, since the mid 1980s, leaded petrol has steadily been withdrawn and unleaded introduced. The use of this alternative has been encourage by associated financial incentives and has resulted in a dramatic drop in atmospheric urban levels in the last 10 years. This demonstrates the type of action which can be taken to reduce harmful atmospheric pollutants.

Other Influences on Air Quality

The concentration of an air pollutant in the atmosphere determines the severity of its effects on the people and environment within any area. Ground level concentrations of pollutants are determined by the degree of dispersion which is, in turn, largely a function of the prevailing meteorological conditions at a given time.

Air Quality - Targets

Recent legislation and Government policy guidance reflects the increasing concern that is felt regarding the quality of the air that we breathe and the pollutants that we release into it.

The Government response has centred around two themes:

- Firstly, the development of a national strategy that will set overall objectives for the levels of specified pollutants, based on cost and benefit (see below).

- Secondly, where any of the objectives prescribed are not being achieved or are not likely to be achieved by the year 2005 within any part of the authority's area, the local authority concerned has to designate that part of its area as an Air Quality Management Area (AQMA). A plan covering the designated area then has to be prepared setting out how the authority intends to exercise its powers in relation to the designated area to achieve the prescribed standards or objectives. Some local authority areas have been set up as pilots to review the DoE Guidance, consider and anticipate problems in achieving the objectives; one such area is the Tyne and Wear Authorities' area. The Agency is a statutory consultee on these plans however, we are proposing taking a active role in assisting local authorities with the management of air quality (see Issue 2 in Part 1).

UK National Air Quality Strategy

The UK National Air Quality strategy sets out the Government's proposed objectives for air quality. A summary of these standards is set out below:

Pollutant	Standard		Objective to be achieved by 2005
	concentration	measured by	
Benzene	5ppb	running annual mean	5ppb
1,3 Butadiene	1ppb	running annual mean	1ppb
Carbon monoxide	10ppm	running 8-hour mean	10ppm
Lead	0.5 $\mu g/m^3$	annual mean	0.5 $\mu g/m^3$
Nitrogen dioxide	150 ppb	1 hour mean	150 ppb, hourly mean*
	21 ppb	annual mean	50 ppb, annual mean*
Ozone	50 ppb	running 8-hour mean	50 ppb, measured as the 97th percentile*
Fine particles (PM_{10})	50 $\mu g/m^3$	running 24-hour mean	50 $\mu g/m^3$ measured as the 99th percentile*
Sulphur dioxide	100 ppb	15 minute mean	100 ppb measured as the 99.9th percentile*

ppm = parts per million; ppb=parts per billion; $\mu g/m^3$= micrograms per cubic metre
* = these objective are to be regarded as provisional

Table 6 UK Government's proposed objectives for air quality

Air Quality - Current Status

Currently air quality within the Cheviot and East Northumberland area is not monitored extensively. Air quality information has been collect by the local authorities at the sites shown on Map 27, however, the data is not continuous. This issue is discussed in Part I Issue 2 of this report.

6.4 Biodiversity

Biodiversity: The UK Action Plan

On behalf of the UK Government, the Prime Minister signed the "*Convention on Biological Diversity*" at the Earth Summit in Rio de Janeiro in 1992, together with over 150 Heads of State or governments. This represented a commitment to conserving and maintaining the variety of life on earth and recognised that each country had a prime responsibility to conserve and enhance biodiversity within its own jurisdiction. It was agreed that each country would draw up national plans and programmes.

Two years after the Rio summit, the UK Government published "*Biodiversity: The UK Action Plan (1994)*", a document which set out the UK's commitment "*to conserve and enhance biological diversity within the UK, and to contribute to the conservation of global biodiversity through all appropriate mechanisms*".

The 1994 UK Action Plan proposed the setting up of a Biodiversity Steering Group, consisting of central and local government representatives together with conservation and voluntary agencies, to prepare action plans for the nation's species and habitats. At the end of 1995, the steering group presented to Government "*Biodiversity: The UK Steering Group Report*" in two volumes. With over 400 pages of information, this provides a much needed insight into the status of our plants, animals and habitats, reasons for their decline and includes targets for their future conservation. In particular, the report contains national action plans (some of these with costs) to maintain or improve the quality of species and habitats, proposals for data collection and raising public awareness and guidance on involving local people in the biodiversity component of the Local Agenda 21 process.

The Implementation of the Initiative at a Local Level

The only way that the UK Biodiversity Action Plan will be implemented successfully is if national targets and action plans are translated into effective action at a local level. The Biodiversity Steering Group report recommends the production of Local Biodiversity Action Plans which are seen as a primary way of achieving such actions. Their main functions are to ensure that national targets for species and habitats are attained in a consistent manner throughout the UK and to focus resources on the issues by means of local partnerships or consortiums between central government, local government, voluntary and statutory conservation organisations, local record centres, private landowners, and local communities. In England, these partnerships should ideally be developed at the county or district level of local authorities.

A Local Biodiversity Action Plan (BAP) for Northumberland

It is proposed that a Northumberland BAP Working Group be set up to take forward a local action plan for the county. The group would represent a unique partnership between the County Council, the District Councils, the National Park, the Environment Agency, Northumberland Wildlife Trust, English Nature, the Royal Society for the Protection of Birds and Hancock Museum Biological Records Centre.

It is proposed that the County Council ecologist should oversee the production of a Biodiversity Action Plan for the county of Northumberland. A similar exercise is taking place in Tyne and Wear and is now underway in County Durham. The steering group will ensure the full consultation of the appropriate County, District and National Park committees as the document is in production, and final acceptance of the BAP.

This strategic approach is expected to give consistency across the whole of the region. Upon completion of a county-wide BAP, individual action plans can be produced for each of the District Councils and the National Park. These plans will: detail the levels of nature conservation resource present in each district; agree targets for habitats and species which are appropriate; detail actions which will be needed to achieve a sustainable level of the nature conservation resource. The BAP will make nature conservation data more objective and put it onto a par with other information used in the strategic planning and decision-making process, such as population statistics, housing needs, traffic predictions etc. It is anticipated that there will be gaps and weaknesses in the information available, especially relating to species, but the BAP will highlight these deficiencies and make recommendations for supplementing the data as appropriate.

The Environment Agency's Role

In the Cheviot and East Northumberland LEAP area the Agency is the contact point or lead agency for:

- Otter
- Water Vole
- Pearl Mussel
- Crayfish

An important first step in the conservation of these species will be the identification of actions based on good information regarding status. Information related to the distribution and status of the otter is reasonably complete. Crayfish distribution throughout the catchment is known, though information on population size is less comprehensive. Issue 23 in Part I of this document deals with how we plan to undertake our work in this area.

Appendices

7 Appendices

7.1 Statutory Committees/Area Environment Group

The North East Region of the Environment Agency is served by three* Committees:

- Regional Environment Protection Advisory Committee (REPAC).
- Regional Flood Defence Committee (RFDC):
  **[There are two Regional Flood Defence Committees in the North East Region:*
  - *Northumbria RFDC (which covers the Northumbria Area and the Tees Catchment)*
  - *Yorkshire RFDC (which covers the southern half of the North East Region including North, South, East and West Yorkshire)]*
- Regional Fisheries Advisory Committee (RFAC)

REPAC members are drawn from specific interest groups outlined in a Membership Scheme approved by the Secretary of State for the Environment. These groups are:

- Regulated Bodies (including industry and water companies);
- Land/Air;
- Environment;
- Local Authorities;
- Other Environment Agency Statutory Committees (RFDC and RFAC).

The Chairman is appointed by the Secretary of State and the Members appointed by the Regional General Manager.

RFDC Members are appointed by local authorities, Ministry of Agriculture, Fisheries and Food and the Environment Agency in accordance with a Constitution Order approved by the Ministry. The Chairman is appointed by the Minister. The RFDC has executive powers with regard to the discharge of its flood defence duties.

RFAC Members are drawn from anglers, angling organisations, commercial netsmen, riparian owners, conservation, recreation and navigation groups and other Environment Agency Committees (REPAC and RFDC). The Chairman is appointed by the Minister of Agriculture, Fisheries and Food and the Members appointed by the Regional General Manager.

Area Environment Groups

The Northumbria Area is served by its own Area Environment Group (AEG). Membership consists of local people who live and work in the area and who represent a wide spectrum of interests. These include local authorities, industry, agriculture, conservation, amenity and recreational interests and riparian owners (see Section 1.2). The Group will advise the Agency on LEAPs, the delivery of local services and act as a link between the local community, the Agency and its statutory committees.

7.2 Environmental Standards

There is a great deal of legislation that determines the way the Agency operates and carry out its enforcement duties. The Environment Act 1995 provides some harmonisation of powers, but the Agency also relies on existing legislation, including the Control of Pollution Act (1974), the Control of Pollution Act (Amendment) Act (1989), the Environmental Protection Act (1990), the Radioactive Substances Act (1993), the Salmon and Freshwater Fisheries Act (1975), the Water Resources Act (1991), and the Land Drainage Act (1991).

The Agency is the competent Authority for over 25 European Union environmental Directives whilst a further 70 Directives affect its policies and activities. These include the Quality of Bathing Waters, Dangerous Substances, Industrial Plant Emissions, Waste Management Framework, Quality of Water to Protect Freshwater Fisheries, and the Urban Waste Water Treatment Directives.

Operational Standards are the technical, scientific and engineering procedures which are necessary to put legislation and policy into practice. These take many forms, including policy statements, procedural manuals, and suite of quantitative output and performance measures that the Agency monitors quarterly or annually. Details of the Agency's operational standards are published in technical handbooks, research & development reports, and information leaflets. Further details are available from local offices.

7.2.1 Public Registers and Access to Environmental Information

We maintain several public registers which can be inspected at most Environment Agency offices. Information is usually provided free of charge, but for large and complex requests charges may be made for staff time and materials. There are also standard charges for some specific searches. Confidential information, incomplete or draft reports, and information where disclosure may lead to environmental damage are generally not available.

Further details about public registers and the types of information held by the Agency are available in our leaflet *A Guide to Information Available to the Public.* Copies are available at our Newcastle office, or you can telephone and we will send one to you in the post.

At present, offices may have information relevant only to their local area; please call before you visit to ensure that the information you want is available at your local office. Our staff will be happy to help you with any queries you may have and if you call before you visit we will ensure that they are on hand to help you with your query.

Some environmental details and information regarding the public registers are available on the Internet on http://www.environment-agency.gov.uk

7.2.2 The RQO Classification

The water quality targets that we use in all rivers are known as River Quality Objectives (RQOs). RQOs are used for managing water quality and are based on the River Ecosystem (RE) classification scheme. We eventually plan to introduce Statutory Water Quality Objectives to supersede these River Quality Objectives.

These classes reflect the chemical quality needed by different types of river ecosystem including the types of fishery they can support. We set RQOs based on the need to protect current water quality and future use.

Use Class	DO % sat 10%ile	BOD (ATU) mg/l 90%ile	Total Ammonia mg N/l 90%ile	Un-ionised Ammonia mg N/l 95%ile	pH 5%ile & 95%ile	Hardness mg/l $CaCO_3$	Dissolved copper µg/l 95%ile	Total zinc µg/l 95%ile	Class Description
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	Water of very good quality suitable for all fish species
RE2	70	4	0.6	0.021	6.0-9.0	<10 >10 and <50 >50 and <100 >100	5 22 40 112	30 200 300 500	Water of good quality suitable for all fish species
RE3	60	6	1.3	0.021	6.0-9.0	<10 >10 and <50 >50 and <100 >100	5 22 40 112	300 700 1000 2000	Water of fair quality suitable for high class coarse fish populations
RE4	50	8	2.5	—	6.0-9.0	<10 >10 and <50 >50 and <100 >100	5 22 40 112	300 700 1000 2000	Water of fair quality suitable for coarse fish populations
RE5	20	15	9	—	—	—			Water of poor quality which is likely to limit coarse fish populations

Standards for the River Ecosystem Use Classes

7.2.3 Bathing Waters Directive

The EC Directive *concerning the quality of bathing water* (76/160/EEC) seeks to protect public health and the amenity value of popular bathing waters by reducing pollution. The Directive contains standards for 19 microbiological, physical and chemical parameters to assess bathing water quality. Compliance is assessed mainly by standards for bacteria (total and faecal coliforms) found in sewage.

The Agency is responsible for monitoring the quality of identified, popular bathing waters and providing the results to DoE who decides whether the standards in the Directive have been met. Where identified bathing waters fail to meet the Directive, we are responsible for identifying sources of pollution that are causing failures, and making sure that improvements are made.

Parameter	Units	Value		Status	
		I	G	I	G
Total coliforms	no/100ml	10,000	500	95% of samples	80% of samples
Faecal coliforms	no/100ml	2,000	100	95% of samples	80% of samples
Faecal streptococci	no/100ml	—	100	—	95% of samples
Salmonella	no/l	0	—	95% of samples	—
Enterovirus	PFU/10l	0	—	95% of samples	—

Notes: PFU = Plaque Forming Units I = Imperative or Mandatory standard G = Guideline standard

There is currently no imperative standard for faecal streptococci, however it has been proposed that the Directive should be revised and should include an imperative standard for faecal streptococci of 400/100ml.

Microbiological Standards

Parameter	Analysis Method	Description/Standard
Colour	Visual inspection	No abnormal change
Mineral oils	Visual inspection	No visible surface film
	Olfactory inspection	No odour
	mg/l after extraction and weighing dried residue	≤ 0.3
Surface-active substances (methoylene-blue active)	Visual inspection	No lasting foam
	mg/l as lauryl sulphate	≤ 0.3
Phenols	Olfactory inspection	No specific odour
	mg/l	≤ 0.05
Transparency	m	1
Tarry residues, solid floating material, effluent slicks	Visual inspection	Absent

Aesthetic Criteria

7.2.4 Surface Water Abstraction Directive

The EC Directive *concerning the quality required of surface water intended for the abstraction of drinking water in the Member states* (75/440/EEC), protects the quality of surface water used for public supply. This Directive ensures that water abstracted for public supply meets certain quality standards and is given adequate treatment before entering public water supplies.

The Directive sets out imperative standards that must be achieved, and guideline standards that Member States should aim to achieve, for water for public supply which is to be given different levels of treatment.

The Agency is responsible for monitoring the quality of designated surface water abstractions and reporting the results to the DoE who decide whether the standards in the Directive have been met. Where standards are not met, we are responsible for identifying sources of pollution and making sure that improvements are made.

Definition of the Standard Methods of Treatment for Transforming Surface Water of Categories A1, A2 and A3 into Drinking Water	
Category A1	Simple physical treatment and disinfection, eg rapid filtration and disinfection
Category A2	Normal physical treatment, chemical treatment and disinfection, eg pre-chlorination, coagulation, flocculation, decantation, filtration, disinfection (final chlorination)
Category A3	Intensive physical and chemical treatment, extended treatment and disinfection, eg chlorination to break-point, coagulation, flocculation, decantation, filtration, absorption (activated carbon), disinfection (ozone, final chlorination)

Characteristics of Surface Waters Intended for the Abstraction of Drinking Water			Categories					
Parameters			A1		A2		A3	
			G	I	G	I	G	I
1	pH		6.5 to 8.5	---	5.5 to 9	---	5.5 to 9	---
2	Coloration (after simple filtration)	mg/l Pt scale	10	20 (0)	50	100 (0)	50	200 (0)
3	Total suspended solids	mg/l SS	25	—	---	—	---	—
4	Temperature	°C	22	25 (0)	22	25 (0)	22	25 (0)
5	Conductivity	$\mu s/cm^{-1}$ at 20°C	1000	---	1000	---	1000	—
6	Odour	(dilution factor at 5°C)	3	---	10	---	20	---
7	Nitrates	mg/l NO_2	25	50 (0)	—	50 (0)	---	50 (0)
8	Fluorides	mg/l F	0.7 to 1.0	1.5	0.7 to 1.7	---	0.7 to 1.7	—
9	Total extractable organic chlorine	mg/l Cl	—	---	—	---	---	—
10	Dissolved Iron	mg/l Fe	0.1	0.3	1	2	1	—
11	Manganese	mg/l Mn	0.05	---	0.1	---	1	---
12	Copper	mg/l Cu	0.02	0.05 (0)	0.05	—	1	---
13	Zinc	mg/l Zn	0.5	3	1	5	1	5
14	Boron	mg/l B	1	---	1	---	1	---
15	Beryllium	mg/l Be	---	—	---	—	—	---
16	Cobalt	mg/l Co	—	---	---	---	---	—
17	Nickel	mg/l Ni	---	---	—	---	---	---
18	Vanadium	mg/l V	---	—	---	—	—	---
19	Arsenic	mg/l As	0.01	0.05	---	0.05	0.05	0.1
20	Cadmium	mg/l Cd	0.001	0.005	0.001	0.005	0.001	0.005
21	Total Chromium	mg/l Cr	—	0.05	—	0.05	---	0.05
22	Lead	mg/l Pb	—	0.05	—	0.05	---	0.05
23	Selenium	mg/l Se	---	0.01	---	0.01	---	0.01
24	Mercury	mg/l Hg	0.0005	0.001	0.0005	0.001	0.0005	0.001
25	Barium	mg/l Ba	---	0.1	—	1	---	1
26	Cyanide	mg/l Cn	---	0.05	—	0.05	---	0.05
27	Sulphates	mg/l So_4	150	250	150	250 (0)	150	250 (0)
28	Chlorides	mg/l Cl	200	—	200	—	200	---
29	Surfactants (reacting with methyl blue)	mg/l (lauryfsulphate)	0.2	—	0.2	—	0.5	---
30	Phosphates	mg/l P_2O_5	0.4	---	0.7	—	0.7	---
31	Phenols (phenol index) paranitraniline 4 aminoantipyrine	mg/l C_6H_5OH	---	0.001	0.001	0.005	0.01	0.1

Characteristics of Surface Waters Intended for the Abstraction of Drinking Water			Categories					
Parameters			A1		A2		A3	
			G	I	G	I	G	I
32	Dissolved or emulsified hydrocarbons (after extraction by petroleum ether)	mg/l	—	0.05	—	0.2	0.5	1
33	Polycyclic aromatic hydrocarbons	mg/l	—	0.0002	—	0.0002	—	0.001
34	Total pesticides (parathion, BHC, dieldrin)	mg/l	—	0.001	—	0.0025	—	0.005
35	Chemical oxygen demand (COD)	mg/l O_2	—	—	—	—	30	—
36	Dissolved oxygen saturation rate	% O_2	> 70	—	>50	—	> 30	—
37	Biochemical oxygen demand (BOD_5) (at 20°C with nitrification)	mg/l O_2	3	—	5	—	< 7	—
38	Nitrogen by Kjeldahl method (except NO_3)	mg/l N	1	—	2	—	3	—
39	Ammonia	mg/l NH_4	0.05	—	1	1.5	2	4 (0)
40	Substances extractable with chloroform	mg/l SEC	0.1	—	0.2	—	0.5	—
41	Total organic carbon	mg/l C	—	—	—	—	—	—
42	Residual organic carbon after flocculation and membrane filtrations (5 μ) TOC	mg/l C	—	—	—	—	—	—
43	Total coliforms 37°C	/100ml	50	—	5,000	—	50,000	—
44	Faecal coliforms	/100ml	20	—	2,000	—	20,000	—
45	Faecal streptococci	/100ml	20	—	1,000	—	10,000	—
46	Salmonella		Not present in 5,000ml	—	Not present in 1,000ml	—	—	—

I = mandatory
G = guide
(0) = exceptional climatic or geographical conditions

7.2.5 EC Dangerous Substances Directive

The EC Dangerous Substances Directive *on pollution caused by certain substances discharged in the aquatic environment of the community* (76/464/EEC) protects the water environment by controlling discharges to rivers, estuaries and coastal waters.

This Directive describes two lists of compounds. List I contains substances regarded as particularly dangerous as they are toxic, persist in the environment and bioaccumulate. Discharges containing List I substances must be controlled by Environmental Quality Standards (EQSs) issued through Daughter Directives. List II contains substances which are considered to be less dangerous but can still have a harmful effect on the water environment. Discharges of List II substances are controlled by EQSs set by the individual Member States.

The Agency is responsible for authorising, limiting and monitoring dangerous substances in discharges. We are also responsible for monitoring the quality of waters receiving discharges which contain dangerous substances and reporting the results to the DoE who decide whether the standards in the Directive have been met. Where the requirements of this Directive are not met, we are responsible for identifying sources of pollution and making sure that improvements are made.

Parameter	Units	Value	Status [1]
Mercury	µg Hg/l	1.0	AA, T
Cadmium [2]	µg Cd/l	5.0 1.0	AA, T AA, T, B [4]
Hexachlorocyclohexane (HCH) [2]	µg/l	0.1 0.05	AA, T AA, T, B [4]
Tetrachloromethane (CTC)	µg/l	12	AA, T
DDT (para-para DDT isomer) [2]	µg/l	0.01	AA, T
Total DDT [2]	µg/l	0.025	AA, T
Pentachlorophenol (PCP) [2]	µg/l	2	AA, T
'The Drins' (from 1 Jan 1989)	µg/l	0.03 [3]	AA, T
Aldrin (from 1 Jan 1994)	µg/l	0.01	AA, T
Dieldrin (from 1 Jan 1994)	µg/l	0.01	AA, T
Endrin (from 1 Jan 1994)	µg/l	0.005	AA, T
Isodrin (from 1 Jan 1994)	µg/l	0.005	AA, T
Hexachlorobenzene (HCB) [2]	µg/l	0.03	AA, T
Hexachlorobutadience (HCBD) [2]	µg/l	0.1	AA, T
Chloroform	µg/l	12	AA, T
1, 2-dichloroethane	µg/l	10	AA, T
Trichloroethylene	µg/l	10	AA, T
Perchloroethylene	µg/l	10	AA, T
Trichlorobenzene (TCB)	µg/l	0.4	AA, T

EQSs for List I Substances (Inland Waters)

Parameter	Units	Value	Status [1]
Mercury [2]	µg Hg/l	0.3	AA, D
Cadmium [2]	µg Cd/l	2.5	AA, D
Hexachlorocyclohexane (HCH) [2]	µg/l	0.02	AA, T
Tetrachloromethane (CTC)	µg/l	12	AA
DDT (para-para DDT isomer) [2]	µg/l	0.01	AA
Total DDT [2]	µg/l	0.025	AA
Pentachlorophenol (PCP) [2]	µg/l	2	AA
'The Drins' (from 1 Jan 1989)	µg/l	0.03 [3]	AA, T
Aldrin (from 1 Jan 1994)	µg/l	0.01	AA
Dieldrin (from 1 Jan 1994)	µg/l	0.01	AA
Endrin (from 1 Jan 1994)	µg/l	0.005	AA
Isodrin (from 1 Jan 1994)	µg/l	0.005	AA
Hexachlorobenzene (HCB) [2]	µg/l	0.03	AA

Parameter	Units	Value	Status [1]
Hexachlorobutadiene (HCBD) [2]	µg/l	0.1	AA
Chloroform	µg/l	12	AA
1, 2-dichloroethane	µg/l	10	AA
Trichloroethylene	µg/l	10	AA
Perchloroethylene	µg/l	10	AA
Trichlorobenzene (TCB)	µg/l	0.4	AA

Notes:
1. AA = Annual Average T = Total B = Background Monitoring
2. A 'standstill provision exists for concentrations in sediments and/or shellfirsh and or/fish
3. Maximum of 0.005 for Endrin
4. B = Background Monitoring: only applies at designated end of catchment sites.

EQSs for List I Substances (Tidal Waters)

Proposals have been published for the following List I substances but these have no been adopted to date:

trifluralin, endosulphan, simazine, triorganotin compounds (tributyltin oxide, triphenyltin acetate, triphenyltin oxide, triphenyltin hydroxide), atrazine, organohposphorus substances (azinphos-methyl, azinphos-ethyl, fenitrothion, fenthion, malathion, parathion and parathion-methyl, dichlorvos).

Parameter	Units	Value [3]		Hardness (mg $CaCO_3$/1)	Status [2]
		A Std	B Std		
Lead	µg Pb/l	4 10 10 20	50 125 125 250	0 to 50 50 to 100 100 to 150 150 to > 250	AA, D
Chromium	µg Cr/l	5 10 20 20	150 175 200 200	0 to 50 50 to 100 100 to 150 150 to 200	AA, D
Zinc	µg Zn/l	8 50 75 75 75 125	75 175 250 250 250 500	0 to 50 50 to 100 100 to 150 150 to 200 200 to 250 >250	AA, T
Copper	µg Cu/l	1 6 10 28	1 6 10 28	0 to 50 50 to 100 100 to 150 150 to > 200	AA, D
Nickel	µg Ni/l	50 100 150 200	50 100 150 200	0 to 50 50 to 100 100 to 200 200 to > 250	AA, D
Arsenic	µg As/l	50		All	AA, D
Boron	µg B/l	2000		All	AA, T
Iron	µg Fe/l	1000		All	AA, D
pH	pH values	6 to 9		All	95% of samples
Vanadium	µg V/l	20 60	20 60	0 to 200 200 +	AA, T
Tributyltin	µg/l	0.02		All	M, T
Triphenyltin	µg/l	0.02		All	M, T

Parameter	Units	Value [3]		Hardness (mg $CaCO_3$/l)	Status [2]
		A Std	B Std		
Polychlorochlormethyl-sulphonamidiphenyl (PCSDs)	µg/l	0.05		All	T, 95% of samples
Sulcofuron	µg/l	25		All	T, 95% of
Flucofuron	µg/l	1.0		All	T, 95% of
Permethrin	µg/l	0.01		All	T, 95% of
Cyfluthrin	µg/l	0.001		All	T, 95% of

EQSs for List II Substances (Inland Waters)

Parameter	Units	Value [1]	Status [2]
Lead	µg Pb/l	25	AA, D
Chromium	µg Cr/l	15	AA, D
Zinc	µg Zn/l	40	AA, D
Copper	µg Cu/l	5	AA, D
Nickel	µg Ni/l	30	AA, D
Arsenic	µg As/l	25	AA, D
Boron	µg B/l	7000	AA, D
Iron	µg Fe/l	1000	AA, D
pH	pH values	6 to 8.5 [3]	95% of samples
Vanadium	µg V/l	100	AA, T
Tributyltin	µg/l	0.002	M, T
Triphenyltin	µg/l	0.008	M, T
Polychlorochlormethyl-sulphonamidiphenyl (PCSDs)	µg/l	0.05	T, 95% of samples
Sulcofuron	µg/l	25	T, 95% of samples
Flucofuron	µg/l	1.0	T, 95% of samples
Permethrin	µg/l	0.01	T, 95% of samples
Cyfluthrin	µg/l	0.001	T, 95% of samples

Notes: 1. National environmental quality standards recommended for the UK
2. AA = Annual Average D = Dissolved T = Total M = Maximum Allowable Concentration
3. A Std denotes standards for the protection of sensitive aquatic life
B Std denotes standards for protection of other aquatic life

EQSs for List II Substances (Tidal Waters)

7.2.6 EC Urban Wastewater Treatment Directive

The EC Directive *concerning urban wastewater treatment* (91/271/EEC) specifies minimum standards for sewage treatment and sewage collection ssyterns.

This Directive specifies secondary treatment for all discharges serving population equivalents greater than 2,000 to inland waters and estuaries, and greater than 10,000 to coastal waters. Discharges below these population equivalents receive appropriate treatment as defined in the AMP2 guidance note (see below). The Agency is responsible for making sure that discharges receive the level of treatment specified in this Directive.

This Directive also allows higher standards of treatment for discharges to *sensitive* areas, and /or lower standards of treatment to *less sensitive* areas. Sensitive areas are those waters which receive discharges from population equivalents of greater than 10,000, and are, or may become eutrophic in the future.

We present monitoring information to the DoE who decide whether a watercourse is sensitive. We then ensure that discharges to the sensitive area receive a higher level of treatment.

Less Sensitive Areas or *High Natural Dispersion Areas* (HNDAs) are those estuarine or coastal waters which are naturally very dispersive. In these areas a lower level of sewage treatment is required. However, dischargers must demonstrate that no harm will be caused to the environment by the lower level of treatment. We are responsible for ensuring that these studies are carried out correctly.

7.2.7 Annex 1A Reduction Programme

At the second and third North Sea Conferences in 1987 and 1990, the UK Government made a commitment to reduce the load (load = concentration x flow) of certain substances known as Annex 1A substances (listed below) entering tidal waters from rivers and direct discharges. Loads of most Annex 1A substances were to be reduced by 50%, and loads of mercury, cadmium and lead were to be reduced by 70%, by 1995 compared to a 1985 baseline (or a 1991/1992 baseline where data for 1985 is unavailable).

The Agency is responsible for carrying out monitoring and identifying significant sources of the following substances. We identify significant sources by ranking loads of Annex 1A substances in rivers and direct discharges according to their size. A discharge is significant if it belongs to the group of discharges that contribute the first 95% of the total load entering tidal waters. In accordance with DoE guidelines we identify where reductions can be made.

Third North Sea Conference - Priority Hazardous Substances (Annex 1A List of Substances)

Mercury
Cadmium
Copper
Zinc
Lead
Arsenic
Chromium
Nickel
Aldrin
Dieldrin
Endrin
Isodrin
HCH
DDT
Pentachlorophenol
Hexachlorophenol
Hexachlorobutadiene
Carbon tetrachloride
Chloroform
Endosulphan
Simazine
Atrazine
Triorganotin compounds
Azinphos-ethyl
Azinphos-methyl
Fenitrothion
Fenthion
Malathion
Parathion
Parathion-methyl
Dichlorvos
Trichloroethylene
Tetrachloroethylene
1,1,1-trichloroethane
Trichlorobenzene
1,2-dichloroethane
Polychlorinated biphenyls
Dioxins (*)
Trifluralin

At the Third North Sea Conference, the UK Government undertook to reduce loadings (flow x concentration) of the Annex 1A list of substances except Dioxins (*) entering UK tidal waters from rivers and direct discharges by 50% (70% for Hg, Cd, Pb) by 1995, against a 1985 baseline.

Note: AMP2 guidance note states:
In order of priority, schemes included are:

- those required to meet and maintain current EU and domestic statutory obligations
- those required to meet and maintain new EU and domestic statutory obligations
- those which have already been justified separately, required to maintain river quality relative to the 1990 NRA survey of water quality or to achieve river or marine improvements.

7.2.8 The GQA Classification

The GQA scheme is the Agency's classification system designed to provide an absolute measure and show trends in water quality over time. It has replaced the earlier National Water Council Scheme.

Biological GQA

The GQA Biology sampling programme is carried out every 5 years. Each river stretch to be classified is then assigned the site that most accurately represents its biological status. The GQA system is unsuitable for lakes, reservoirs and canals.

Biology is linked to water quality by biotic indices. The Agency uses the Biological Monitoring Working Party score as biotic indices. Different watercourses, and sites on the same watercourse, will support different invertebrates because of the particular geography, climate, geology, and the habitats that occur. The values of biotic indices derived from different sites will therefore vary, even when their water is of similarly good quality. Biotic indices cannot be used to compare the water quality of different sites, unless the sites are very similar morphologically and geographically. This suggests that it is best to describe biology in terms of a shortfall from that expected under conditions of good water quality.

To overcome the problem as detailed above, the GQA Biological classifications are based on Ecological Quality Indices (EQI):

Biological Class	Class Description	Lower class limits	
		EQI ASPT	EQI N-taxa
a	Very Good	1.00	0.85
b	Good	0.90	0.70
c	Fairly Good	0.77	0.55
d	Fair	0.65	0.45
e	Poor	0.50	0.30
f	Bad	0.00	0.00

The RIVPACS III computer program was used to predict the composition of the fauna, and hence the values of biotic indices, expected at any site under natural, unpolluted conditions, based on its physical and geographic characteristics. The EQIs of ASPT (Average Score Per Taxon) and number of taxa (N-taxa) are used to classify rivers into bands, the worst predictor determining the GQA classification.

7.2.9 EC Freshwater Fish Directive

The EC Directive *on the quality of waters needing protection or improvement in order to support fish life* (78/659/EEC) ensures that water quality in designated stretches of water is suitable for supporting certain types of fish.

This Directive contains two sets of quality standards. One set of standards protects cyprinid or coarse fish populations. The other set of standards are stricter and protect salmonid fish populations for example, salmon and trout. There are two sets of standards for each fishery type: imperative standards (I) which must be achieved; guideline standards (G) that Member States should aim to achieve.

The Agency is responsible for monitoring the quality of identified fisheries and reporting the results to the DoE who decide whether the standards in the Directive have been met. Where the requirements of this Directive are not met, we are responsible for identifying sources of pollution and making sure that improvements are made.

Determinand	Salmonid Water	Cyprinid Waters			
	G	I	G	I	
Dissolved Oxygen as mg/10_2	100% > 7	50% > 9	100% > 5	50% > 7	
pH as pH units	—	6.0 - 9.0	—	6.0 - 9.0	
Suspended Solids at mg/l	25	—	25	—	
BOD (Total) as mg/10_2	5	—	8	—	
Nitrite as mg/l N	0.15	000	0.46	000	
Non-ionised Ammonia as mg/i N	0.004	0.021	0.004	0.021	
Ammonia (Total) as mg/l N	0.03	0.78	0.16	0.78	
Total Residual Chlorine as mg/l HOCl	—	0.005	—	0.005	
	Hardness (mg/l $CaCo_3$)				
Zinc (Total) as mg/l Zn	0-50 50-100 100-250 >250	— — — —	0.03 0.20 0.30 0.50	— — — —	0.30 0.70 1.00 2.00
Copper (Dissolved) as mg/l Cu	0-50 50-100 100-250 >250	0.005 0.022 0.040 0.112	— — — —	0.005 0.022 0.040 0.112	— — — —

For dissolved oxygen, 50% median and 100% minimum standard/For suspended solids, the G value is an annual average concentration

7.2.10 EC Shellfish Hygiene Directive

The EC Shellfish Hygiene Directive *laying down the health conditions for the production and the placing on the market of live bivalve molluscs* (91/492/EC) protects the health of consumers of live bivalve molluscs such as mussels and oysters. This Directive defines standards for shellfish quality required in the end product. It also classifies bivalve mollusc shellfish harvesting areas into four categories according to the concentration of bacteria found in the shellfish flesh.

The Ministry of Agriculture, Fisheries and Food (MAFF) and the Department of Health (DoH) share responsibility for this Directive in England and Wales. The Agency has only a minor role in implementing this Directive. Although we provide information on the location of discharges that may affect harversting areas, we cannot control the quality of polluting discharges under this Directive.

7.2.11 EC Shellfish Waters Directive

The Shellfish Waters Directive *on the quality required of shellfish waters* (79/923/EEC) protects shellfish populations (defined as bivalve and gastropod molluscs) from harm caused by pollution. The Agency is responsible for monitoring the quality designated shellfish waters and reporting the results of the DoE who decide whether the standards in the Directive have been met. Where standards are not met, we are responsible for identifying sources of pollution and making sure that improvements are made.

The only designated site in Northumbria Area is at Ross Links in North Northumberland in the Cheviot and East Northumberland LEAP area.

Appendix 7.3 Waste Categories

Waste Category A

Soil
Rock
Stone
Clay
Sand
Brick Bats
Slates
Uncoated clay-based tiles

Exclusions

Wastes included in this category are **not** permitted if they:

(a) are mixed with or contaminated with any material other than those listed in Category A above, or
(b) are in sludge or liquid form, or
(c) contain concentrations of contaminants above those given as 'Threshold Values' in the Inter-Departmental Committee for the Redevelopment of Contaminated Land, or
(d) are in a dust, ash, powdered or particulate form.

Waste Category B

Brickwork and concrete (hardcore)
Weathered/excavated coated roadstone (tarmac)
Weathered/excavated cement and cement products
Glass, pottery, ceramics, china, enamels (baked and finished products) and mica
Silica
Plastics (as finished products or manufacturing scrap)
Metal (iron, steel, aluminium, brass, copper, tin, zinc)
Incinerator residues (excluding household, difficult and special wastes)

Exclusions

Wastes included in this category are **not** permitted if they:

(a) are mixed with or contaminated with any materials other than those listed in Category A or B above, or
(b) are in sludge or liquid form (not self-supporting), or
(c) contain concentrations of contaminants above those given as 'Threshold Values' in the Inter-Departmental Committee for the Redevelopment of Contaminated Land, or
(d) are in a dust, ash, powdered or particulate form and are not double bagged in polythene or other suitable handling means as agreed in writing by the Agency prior to its acceptance of the material.

Waste Category C

Waste food
Household waste (or similar waste from institutional, industrial or commercial premises) - including separately collected fractions
Garden, arboricultural, botanical, aquacultural and horticultural waste (excluding chemicals)
Plasterboard
Wood, wood products and wood-based processing wastes
Leather
Incinerator residues
Treated sewage sludge
Road gully and sweeping detritus
Natural and man-made fibres
'Fresh' cement
Packaging, absorbents, wiping cloths, filter materials, protective clothing
'Fresh' coated roadstone (tarmac and bitmac)

Exclusions

Wastes included in this category are **not** permitted if they:

(a) are mixed with or contaminated with any materials not authorised elsewhere in this licence, or
(b) are in a liquid or sludge form (not self-supporting), or
(c) contain concentrations of contaminants above those given as 'Action Values' in the Inter-Departmental Committee for the Redevelopment of Contaminated Land, or
(d) are in a dust, ash, powdered or particulate form and are not double bagged in polythene or other suitable handling means as agreed in writing by the Agency prior to its acceptance of the material.

Waste Category D: Difficult Wastes

Waste Management Paper No 26 contains a classification of Difficult Wastes to which this category applies. From the Difficult Wastes classification only the following types of waste are authorised by this licence:

C12	Calcium oxide
C91	Calcium hydroxide
C92	Sodium and/or potassium carbonate
J12	Asbestos - hard bonded types only
J40	Silt and dredging
L20	Finished products and manufacturing scrap
L60	Ion-exchange resin wastes
M40	Vegetable and other oils
M60	Fats, waxes and greases
Q10	Used filter materials, eg kieselguhr, carbon, filter cloths
Q20	Contaminated rubbish (including bags and sacks) - *but only if contaminated by wastes authorised elsewhere by this licence*
Q30	Empty used containers - *must be decontaminated if previously contained a material not authorised by this licence*
S20	Cellulose wastes (natural and synthetic)
S50	Soap and detergents
T20	Food processing wastes (including starch)

Wastes within this category will be permitted in quantities in **combined total** up to 5% by weight of the monthly intake of Category C wastes and only into cells of waste having sufficient absorptive capacity.

Exclusions

Wastes included in this category are **not** permitted if they are:

(a) mixed with or contaminated by any wastes not authorised elsewhere in this licence, or

(b) in a liquid or sludge form (not self-supporting), or

(c) in a dust, ash, powdered or particulate form and are not double bagged in polythene or other suitable handling means as agreed in writing by the Agency prior to its acceptance of the material.

Waste Category E: Clinical Wastes

Clinical waste Groups A to E as categorised in the Health and Safety Commission document on the safe disposal of clinical waste (1992 revision) and listed below:

Group A All human tissue, including blood (whether infected or not), animal carcasses and tissue from veterinary centres, hospitals or laboratories and all related swabs and dressings.
Waste materials where the COSHH assessment indicates a risk to staff handling them, for example from infectious disease cases.
Soiled surgical dressings, swabs and other soiled waste from treatment areas.

Group B Discarded syringe needles, cartridges, broken glass and any other contaminated disposable sharp instruments or items.

Group C Microbiological cultures and potentially infects waste from pathology departments (laboratory and post-mortem rooms) and other clinical or research laboratories.

Group D Certain pharmaceutical products and chemical wastes.

Group E Items used to dispose of urine, faeces and other bodily secretions or excretions assessed as not falling within Group A. This includes used disposable bed pans to bed pan liners, incontinence pads, stoma bags and urine containers.

Waste Category F

Fibrous asbestos is found commonly in three forms: crocidolite (blue), amosite (brown), and chysolite (white). It also occurs an anthophyllite, tremolite and actinolite. The handling and disposal of this material shall have due regard to the relevant information contained within the following Regulations and Code of Practice:

- The Control of Asbestos at Work Regulations 1987 (SI 1987 No 2115)
- The Control of Asbestos at Work (Amendment) Regulations 1988 (SI 1988 No 712)
- The Control of Asbestos at Work (Amendment) Regulations 1992 (SI 1992 No 3068)
- Waste Management Paper Number 18 - Asbestos Waste
- IWM Code of Practice for the Disposal of Asbestos Waste

Waste Category G: Special Waste

Special Waste shall apply to any controlled waste which:

(a) consists of or contains any of the substances listed in Part I (below) and by reason of the presence of such substance,

(i) is dangerous to life within the meaning of Part II (below), or

(ii) has a flash point of 21°C or less as determined by the methods and with the apparatus laid down by the British Standards Institution in BS3900: Part A, 8: 1976 (EN53), or

(b) is a medicinal product, as defined in Section 130 of the Medicines Act 1968(b), which is available only in accordance with a prescription given by an appropriate practitioner as defined in Section 58(1) of that Act.

Schedule 1

Part I

Acids and alkalis
Antimony and antimony compounds
Arsenic compounds
Asbestos (all chemical forms)
Barium compounds
Beryllium and beryllium compounds
Biocides and phytopharmaceutical substances
Boron compounds
Cadmium and cadmium compounds
Copper compounds
Hexavalent chromium compounds
Heterocyclic organic compounds containing oxygen, nitrogen or sulphur
Hydrocarbons and their oxygen, nitrogen or sulphur compounds
Inorganic cyanides
Inorganic halogen-containing compounds
Inorganic sulphur-containing compounds
Laboratory chemicals
Lead compounds
Mercury compounds
Nickel and nickel compounds
Organic halogen compounds, excluding inert polymeric materials
Phosphorus and its compounds
Peroxides, chlorates, perchlorates and azides
Silver compounds
Pharmaceutical and veterinary compounds
Tellurium and tellurium compounds
Selenium and selenium compounds
Vanadium compounds
Tarry material from refining and tar residues from distilling
Thallium and thallium compounds
Zinc compounds

Part II

1. Waste is to be regarded as dangerous to life for the purposes of these regulations if:
   (a) a single dose of not more than five cubic centimetres would be likely to cause death or serious damage to tissue if ingested by a child of 20 kilograms' body weight, or
   (b) exposure to it for fifteen minutes or less would be likely to cause serious damage to human tissue by inhalation, skin contact or eye contact.

2. Special waste delivered to the site. These may include any of the Department of the Environment categories:

Waste Category		Typical examples
A	Inorganic acids	Hydrochloric, sulphuric acids
B	Organic acids	Acid anhydrides
C	Alkalis	Ammonia
D	Toxic metal compounds	Cadmium, mercury, lead solutions
G	Metal oxides	Cadmium oxide
H	Inorganic compounds	Cyanide, arsenic, nitrates
J	Other inorganic materials	Asbestos
K	Organic compounds	Phenols, peroxides, trichloroethene, alcohols
M	Fuels, oils and greases	Petrol, diesel, paraffin, vegetable oil
N	Fine chemicals and biocides	Pesticides, herbicides
P	Miscellaneous chemical waste	Laboratory chemicals, unidentified cans, bottles etc
R	Tars, paint, dyes and pigments	Paint, ink, varnish
T	Animal and food waste	Blood, fat, glue

GLOSSARY OF ABBREVIATIONS

3E's	Emissions, Efficiency and Economics
ADAS	Agricultural Development Advisory Service
AEG	Area Environment Group
AMP	Asset Management Plan
AONB	Area of Outstanding Natural Beauty
ASPT	Average Score per Taxon
BAP	Biodiversity Action Plan
BATNEEC	Best Available Technique Not Entailing Excessive Cost
BCU	British Canoe Union
BMP	Best Management Practice
BOD	Biochemical Oxygen Demand
BPEO	Best Practicable Environmental Option
C2C	Coast to coast
CBI	Confederation of British Industry
CCTV	Closed Circuit Television
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COPA74	Control of Pollution Act 1974
CSO	Combined Sewer Overflow
COSHH	Control of Substances Hazardous to Health
DC	District Council
DoE	Department of the Environment
EC	European Community
EPAQ	Expert Panel for Air Quality
EQI	Ecological Quality Index
EQS	Environmental Quality Standard
ESA	Environmentally Sensitive Area
EU	European Union
FDMS	Flood Defence Management System
FRCA	Farming and Rural Conservation Agency
FWAG	Farming and Wildlife Advisory Group
GQA	General Quality Assessment
HCH	Hexachlororocyclohexane

HNDA	High Natural Dispersement Area
HE	House Equivalents
HMIP	Her Majesty's Inspectorate of Pollution
HOF	Hands Off Flow
INCA	Industry and Nature Conservation Association
IPC	Integrated Pollution Control
IWM	Institute of Water Management
LA	Local Authority
LAQM	Local Air Quality Management
LDA91	Land Drainage Act 1991
LEAP	Local Environment Agency Plan
LUB	Land Use Band
MAFF	Ministry of Agriculture, Fisheries and Food
MBC	Metropolitan Borough Council
MMF	Minimum Maintained Flow
NFU	National Farmers Union
Nox	Oxides of Nitrogen
NRA	National Rivers Authority
NWC	Northumbrian Water Classification
NWL	Northumbrian Water Limited
OFWAT	Office of Water Trading
PCB	Polychlorobiphenyl
PhD	Doctor of Philosophy
pSAC	proposed Special Area of Conservation
pSPA	proposed Special Protection Area
RAS	Radioactive Substances
RE	Rivers Ecosystem
REPAC	Regional Environment Protection Advisory Committee
RFAC	Regional Fisheries Advisory Committee
RFDC	Regional Flood Defence Committee
RIGS	Regionally Important Geological Sites
RIVPACS	River Invertebrate Prediction and Classification System
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAM	Scheduled Ancient Monument

SEPA	Scottish Environment Protection Agency
SFC	Sea Fisheries Committee
SoS	Standards of Service
SMP	Shoreline Management Plan
SO_2	Sulphur dioxide
SPA	Special Protection Area
SSSI	Site of Special Scientific Information
STW	Sewage Treatment Works
SWQOs	Statutory Water Quality Objectives
TBT	Tributyl-tin
TCMA	Thousand Cubic Metres per Annum
TCMD	Thousand Cubic Metres per Day
TWWDP	Tyne and Wear Watersports Development Project
UDP	Unitary Development Plan
UWWTD	Urban Waste Water Treatment Directive
VOC	Volatile Organic Compound
WCA	Waste Collection Authorities
WDA	Waste Disposal Authorities
WLMP	Water Level Management Plan
WQO	Water Quality Objective
WRA91	Water Resources Act 1991

GLOSSARY OF TERMS

Abstraction	Removal of water from surface or groundwater, usually by pumping.
Abstraction Licence	Licence issued by the Agency under Section 38 of the Water Resources Act 1991 to permit water to be abstracted. The maximum annual, daily and hourly abstraction rates are normally set within the terms of the licence.
Air Quality Standards	This is the concentration of an air pollutant above which it is regarded as hazardous and below which it is regarded as safe.
Air Quality Guideline	An objective measure of air quality against which ambient concentrations can be compared.
Air Pollutant	An atmospheric trace constituent that between its points of discharge to the atmosphere and ultimate removal causes harm top a target.
Air Quality Data	At least three elements are to quantify air quality: • A numerical quantity • Units • An averaging period
Aquifer	A layer of underground porous rock which contains water and allows water to flow through it.
Area of Outstanding Natural Beauty	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 natural beauty.
Baseflow	That part of the flow in a watercourse made up of groundwater and discharges; it sustains the stream during periods of low rainfall.
Berm	A shelf at the base of a bank at normal flows which gives extra channel width in high flows.
Beta Particle	An electron or positron emitted from a nucleus in certain types of radioactive disintegration.
Biochemical Oxygen Demand	BOD is a measure of the amount of oxygen consumed in water, usually as a result of its organic content.
Catchment	Area bounded by the watershed from which water runs off to any given river valley.
Combined Sewer Overflow	An overflow structure which permits a discharge from the sewerage system during wet weather conditions.
Confluence	The point at which two, or more, rivers meet.
Consent to Discharge	The statutory document issued by the Agency to indicate any limits and conditions on a discharge.
Culvert	A man-made structure, for example a pipe, carrying a watercourse underground.
Cumecs	Cubic metres per second.
Dangerous Substances	Substances defined by the European Commission as being in need of special control because of their toxicity, bioaccumulation or persistence. The substances are classified as List I or List II according to the Dangerous Substances Directive (76/464/EEC).
Deposition	Where a river flows slowly it may deposit gravel, sand and silt in its channel - often on the inside edge of beds or meanders.
Diffuse Pollution	Pollution without a single point source; eg acid rain, pesticides, urban run-off, etc.
Directive	Legislation issued by the European Community which is binding on the member states.

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 the water. It is used to classify rivers.

Drift Deposits

Superficial deposits covering solid rock. Often deposited by rivers or by former glaciation in the from of boulder clay, peat or sands and gravel.

Facies

Geological expression for the character of rock expressed by its composition, fossil content etc.

Floodplain

Land adjacent to a watercourse and covered by a water in times of flood.

Flow Measurement

m^3/s Cubic metres per second (cumec)
l/s Litres per second
Mld Megalitres per day
mgd Millions of gallons per day

Conversion Table

m^3/s	Mld	mgd
0.012	1	0.224
0.06	5	1.12
0.12	10	2.24
0.24	20	4.48
0.6	50	11.2
1.2	100	22.4

Fly Tipping

The unregulated and, hence, illegal dumping of waste.

Geomorphology

The study and science of landforms and the processes that form them.

Geomorphological Features

Physical features of a river, which include meandering (winding) channel, gravel beds and shoals, ox-bows, earth cliffs and river terraces.

Greywacke

A dark coarse-grained sandstone.

Groundwater

Water contained in the pores and fissures of aquifers (water bearing strata).

House Equivalent

A measure used for assessing the value of property and land protected against flooding.

Hydrometry

Measurement of hydrological entities.

Invertebrate fauna

Animals without a backbone, eg insects.

Landfill

Site used for solid waste disposal into/onto land.

Leachate

Liquid which seeps through a landfill, and by so doing, extracts substances from the deposited wastes.

Local Nature Reserve

LNRs are declared by Local Planning Authorities in consultation with English Nature under the National Parks and Access to the Countryside Act 1949. LNRs cover areas of local conservation interest.

Main River

Some, but not all, watercourses are designated as Main River. Main River status for a watercourse must first be approved by MAFF. 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.

Marginal

At the water's edge.

National Nature Reserve	National Nature Reserves (NNRs) are statutory, declared under Section 19 of the National Parks and Access to the Countryside Act 1949, or Section 35 of the Wildlife and Countryside Act 1981.
Potable Water	Water of suitable quality for drinking.
Ramsar Site	(Wetlands of International Importance) Ramsar sites are statutory areas designated by the UK Government under the International Ramsar Convention (the Convention on Wetlands of International Importance especially as Waterfowl Habitat). This requires signatory states to designate wetlands of international importance and promote their conservation and wise use. Ramsar sites are designated for their waterfowl population, plant and animal assemblages, wetland interest or a combination of these. Sites designated at Ramsar sites may also be Special Protection Areas (SPA).
Return Period	The frequency within which, on average, a flood event of a certain severity may be expected to return (expressed in years); eg 1 in 50 years.
Riparian Owner.	Owner of land abutting a river or lake. Normally riparian owners own the bed of the river to the mid-point of the channel.
River Corridor	Land which has visual, physical or ecological links to a watercourse and which is dependent on the quality of level of the water within the channel.
River Quality Objective	The level of water quality that a river should achieve in order to be suitable for agreed uses.
Salmonids	Fish classified as belonging to the salmon family; ie salmon, trout, char.
Sensitive Marine Areas	A SMA is a non-statutory marine area of national importance, notable for marine animal and plant communities. A SMA is identified by English Nature so that the area is taken into account by estuarine and coastal management frameworks. These areas rely on the cooperation of users and local communities to achieve sustainable mangement, with the help of grant aid. There is
Septic Tank	A small tank receiving and treating sewage by biological processes.
Sewage Sludge	Accumulated solids from the sewage treatment process. Sludge can be incinerated, spread on farmland, etc. It typically contains 70-90% water, prior to dewatering.
Slurry	Animal waste in liquid form.
Site of Special Scientific Interest	A SSSI is a site designated under the Wildlife and Countryside Act 1981 by English Nature as a result of its nature conservation or geological value.
Source Control	A collective term used to describe the management of run-off at or near the point of impact of rainfall and before it reaches the piped drainage and sewerage systems of urban areas (see Swale). They include balancing ponds, permeable pavements and water butts.
Special Areas of Conservation	SACs are designated under the EU Directive on the Conservation of Natural Habitats and Wild Fauna and Flora (92/43/EEC). This requires member states to designate areas as SACs to protect important wildlife habitats or threatened species. The SAC designation is implemented in the UK by the Conservation (Natural Habitats etc) Regulations 1994. Planning Policy Guidance Note 9 (PPG 9) also gives detailed information on the requirements of the Habitats Directive. In addition, MAFF has published guidelines with particular reference to the implications of SAC designation on flood and coastal defence, these guidelines also apply to SPAs (MAFF, 1995).
Special Protection Area (SPA)	SPAs are designated under the EU Directive on the Conservation of Wildbirds (79/409/EEC). This requires member states to take conservation measures to protect certain rare or vulnerable species and migratory birds. This is achieved by the statutory protection afforded to a site by being designated as an SPA. The designation is implemented through the EU Directive (92/43/EEC on the conservation of natural habitats and wild fauna and flora, the Conservation (Natural Habitats, etc) Regulations 1994 and the Wildlife and Countryside Act 1981, all SPAs have to be first notified as an SSSI. In addition, the Habitats Directive amends the Birds Directive by applying to SPAs the same requirements for protection from damage as apply to SACs.

Strata	Layers of rock, including unconsolidated materials such as sands and gravel.
Sustainable	Capable of being maintained at a steady state without exhausting natural resources or causing ecological damage.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Swale	An example of source control attenuation, swales are grass channels used to convey and treat run-off.
Topography	Physical features of geographical area.
Washlands	The area of the floodplain where water is stored in times of flood. Structures can be added to control the amount of water stored in the washland and time its release to alleviate peak flood flows in areas downstream.
Waste	Waste is defined in the Control of Pollution Act 1974 Section 30(1) to include: (a) any substance which constitutes a scrap material or an effluent or other unwanted surplus substance arising from the application of any process; and (b) any substance or article which requires to be disposed of as being broken, worn out, contaminated or otherwise spoiled, but does not include a substance which is an explosive within the meaning of the Explosives Act 1875.
Waste Arisings	Waste produced by companies or households.
Watercourse	A stream, river, canal or channel along which water flows.
Watertable	The surface of a body of groundwater within the underground strata. The watertable will fluctuate as a result of natural or artificial causes.

MANAGEMENT AND CONTACTS:

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

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

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

ENVIRONMENT AGENCY REGIONAL OFFICES

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

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

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

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

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

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

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

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

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

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE
0645 333 111

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

ENVIRONMENT AGENCY EMERGENCY HOTLINE
0800 80 70 60

ENVIRONMENT AGENCY

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EA-North East LOAR

Northumbria Area Office
Tyneside House
Skinnerburn Road
Newcastle Business Park
Newcastle Upon Tyne
NE4 7AR