

EA-SOUTH WEST LEAPS
- BOX 7

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Photo
Master

local environment agency plan

FROME & PIDDLE and POOLE HARBOUR & PURBECK
CONSULTATION DRAFT
NOVEMBER 1999



ENVIRONMENT
AGENCY

Your views

This Consultation Draft is our initial view of the issues; public consultation allows people who live in or use the area to have a say in the development of our plans and work programmes. We welcome your ideas on the future management of this area:

Have we identified all the issues and options for solutions?

If not we would like to know.

Have you any comments on the issues and the proposed actions listed?

Are you able to help us in any way to resolve any of the issues highlighted?

Please send your views and comments by **29 February 2000**, preferably in writing, noting how you heard about the LEAP, to:

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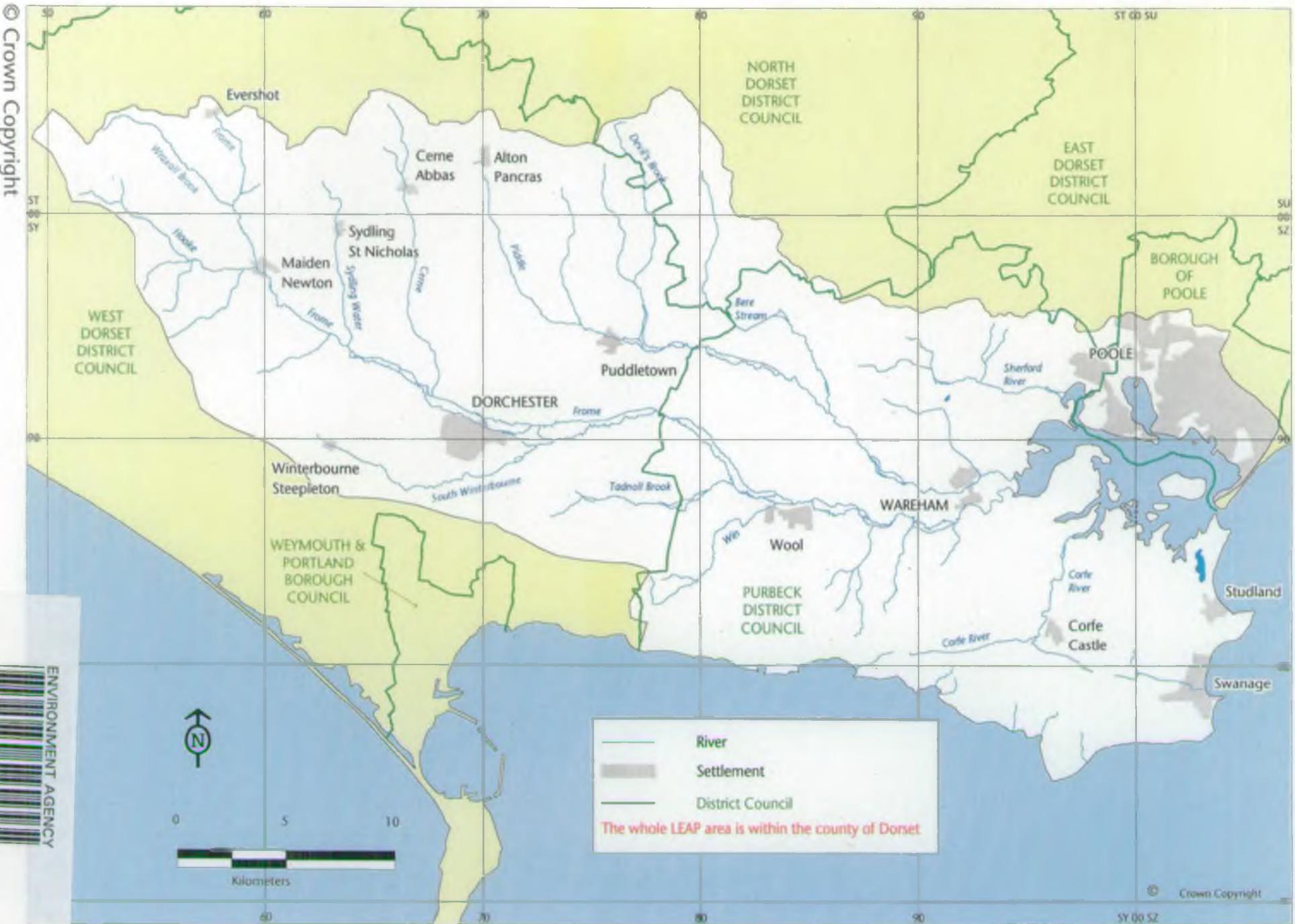
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A summary may be made available to the public and the applicant (this will include your name and address) unless you specifically request otherwise, or indicate that your response is confidential. If you would prefer the full content of your response to be made available please indicate this in your response.

Individuals have the right to see information we hold about them. We will correct it if it is inaccurate.

Published November 1999

Map 1 - Frome & Piddle and Poole Harbour & Purbeck Plan Area and District and County Boundaries



	River
	Settlement
	District Council

The whole LEAP area is within the county of Dorset



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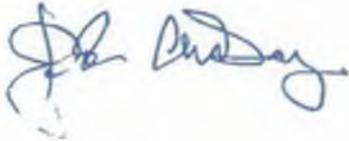
Foreword

The Environment Agency has been charged by the Government to protect or enhance the environment as a whole, in order to play a part in attaining the objective of sustainable development. Responsibilities include the management of radioactive and other forms of waste, industrial pollution control, advising on proposed development and on the restoration of contaminated land, the management of water - water resources, flood defence, freshwater fisheries, conservation - as well as a number of surveillance responsibilities. Much of this work is undertaken in collaboration with other organisations and partners, although regulatory powers are also available.

The Agency plans its future work through Local Environment Agency Plans, LEAPs, based on river catchments. This plan covers the catchments of the rivers Frome and Piddle stretching from Evershot and Milton Abbas in the west and north and down to West Lulworth and Swanage to the south. It includes much of the Borough of Poole and the whole of Poole Harbour.

Whether we live in the town or the country, for all those within this area the actions in the plan will affect the quality of our environment, the landscape around our homes and the wildlife which lives there.

The Agency is anxious to take on board the views of the people it serves and get it right for all of us. Inevitably, resources are never enough to carry out what we would like to do, so choices will have to be made. What is important to you? This is your opportunity to contribute to the planning process and to respond with your concerns and your priorities, please use it.



DR JOHN DAY

Chairman, South Wessex Area Environment Group of the Environment Agency

Contents

1.	Introduction	1
1.1	The Environment Agency	1
1.2	Local Environment Agency Plans	2
1.3	The Area Environment Group	2
1.4	Organisations and their responsibilities in relation to Poole Harbour	2
2.	Description of the plan area	4
2.1	Settlements and commerce	4
2.2	Landscape character	5
2.3	Nature Conservation	6
2.4	Land use	7
2.5	Archaeology	7
2.6	Recreation	7
2.7	Geology	8
2.8	Hydrogeology	8
2.9	Rainfall	9
2.10	Groundwater	9
2.11	River flow	9
2.12	Tides	10
3.	Issues and proposed actions	11
3.1	Managing our water resources	12
3.2	Managing our freshwater fisheries	17
3.3	Enhancing biodiversity	20
3.4	Conserving the land	29
3.5	Managing waste	30
3.6	Delivering integrated river-basin management	33
3.7	Regulating major industries	47
3.8	Improving air quality	48
3.9	Addressing climate change	49
4.	A better environment through partnership	51
4.1	Working with regional government	51
4.2	Working with local planning authorities	51
4.3	Other management plans	54
4.4	Poole Harbour Steering Group	54
4.5	Poole Harbour Study Group	55
4.6	Shoreline Management Plans	55
4.7	Working with the water industry	55
4.8	Local Agenda 21	56
4.9	Working with farmers	57
4.10	Working with business	57
4.11	Conservation	57
4.12	Development of recreation	57
4.13	Education	57
4.14	<i>Make a Difference</i> environmental improvement projects	58
4.15	Public Registers and access to environmental information	58
5.	Appendices	59
5.1	Duties, powers and interests of the Environment Agency	59
5.2	EC Habitats and EC Birds Directive	64
5.3	The setting and maintenance of water quality targets	65
5.4	National Air Quality Strategy	68
6.	Glossary	69
7.	References	72

1. Introduction

1.1 The Environment Agency

Our vision is:

- a better environment in England and Wales for present and future generations

Our aims are:

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

We will do this by:

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

The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management. These duties are described in more detail in Appendix 5.1. While many of these interests are supported by statutory duties, much of the Agency's work is advisory, with the relevant powers resting with other bodies such as local planning authorities.

We are required and guided by Government to use these duties and powers in order to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development *as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*

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

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

1.2 Local Environment Agency Plans

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

For our part we are committed at the local level to a programme of Local Environment Agency Plans (LEAP) in order to produce a local agenda of integrated action for environmental improvement. LEAPs help us identify, assess and solve local environmental issues related to our functions, taking into account the views of external organisations and the general public.

This LEAP slots into the sequence of plans which are being prepared by the Environment Agency to cover England and Wales. It is the fourth LEAP to be produced by the South Wessex area and it replaces the existing Frome & Piddle Catchment Management Plan (CMP) Action Plan and the Poole Harbour & Purbeck CMP Action Plan both published in 1996 by the National Rivers Authority.

1.2.1 LEAP Consultation Draft - The publication of the Frome & Piddle and Poole Harbour & Purbeck LEAP Consultation Draft marks the start of a three-month period of formal consultation enabling external organisations and the general public to work with us in planning the future of the local environment.

Your views will be considered in preparing the next phase, the LEAP Plan. At the end of the consultation period we will produce a Statement on Public Consultation which will summarise the views expressed during the consultation process.

1.2.2 LEAP Plan - The final LEAP will take into account the results of the consultation and will list a number of agreed actions identifying timescales, costs and partner organisations. These actions will be incorporated into the Agency's annual business plans.

1.2.3 Annual Review - We will monitor implementation of the LEAP and report on progress in a published Annual Review. The Annual Review will also identify any new issues or additional actions needed to maintain progress in the light of any changes in the LEAP area and also whether any actions need removing or amending where they are no longer appropriate. After five years, or sooner if required, we will carry out a major review of the progress we have made.

1.3 The Area Environment Group

This group comments upon the Consultation Draft and LEAP Plan prior to public release and provides us with specific advice on the importance of issues within the plan area.

We regard the Area Environment Group as fundamental in assisting us in building relationships with our customers. The Group has a broad experience and interest in environmental matters. The role of the Area Environment Group is an advisory one.

1.4 Organisations and their responsibilities in relation to Poole Harbour

Poole Harbour Commissioners are the statutory Harbour Authority for the area. They have responsibilities for the provision of port facilities and the conservancy and regulation of the harbour, exercising navigational control of the water up to the line of mean high water of ordinary tides under the Poole Harbour Acts and Orders of 1756 to 1999. They are the owners and operators of the port and have powers to create byelaws and issue licences which control activities on the water and permit works and moorings within the harbour limits.

The Southern Sea Fisheries District Committee is the statutory authority responsible for the administration and management of fisheries in Poole Harbour and on the coast. The committee derives its powers from the Sea Fisheries Regulation Act 1966 and the Poole Fishery Order 1985, and has the powers to make byelaws and the right of regulating a fishery for oysters, mussels, cockles and clams. The committee has powers to grant leases, impose restrictions and charge fees for licenses and leased areas within the fishery. However, the Agency does have responsibility for eels, salmon and migratory trout in the coastal zone and this includes the harbour (see Section 3.2).

Dorset County Council is the strategic planning and highway authority for rural areas and is also the agency responsible for

management of the Purbeck Heritage Coast, of which the southern shore of the harbour is part. The Borough of Poole performs both County and District roles for the northern part of the harbour. The Borough of Poole, with representation from Purbeck District Council, also acts as the Port Health Authority for the entire harbour. These two authorities also act as Coast Protection Authorities for the harbour under the Coast Protection Act 1949.

Purbeck District Council is the local planning and environmental health agency for the southern part of the harbour. English Nature is the agency responsible for statutory nature conservation designations within the harbour.

In addition the Agency has overall responsibility for water quality and pollution control within three miles of the coastline and some sea and tidal defence responsibilities. We are part of and support the work of the Poole Harbour Steering Group (see Section 4.4).

2. Description of the plan area

The area covered by this plan comprises the entire catchments of the River Frome, River Piddle, the Corfe River and the Sherford River, Poole Harbour and a number of small river catchments flowing into the sea on the Isle of Purbeck (see Map 1). The plan has a geographical area of some 880 km².

The Frome rises on the North Dorset Downs near Evershot, and flows south to be joined near Cattistock by the Wraxall Brook, and at Maiden Newton by the River Hooke. Two small streams, the Sydling Water and the Cerne, also join the Frome upstream of Dorchester. Below Dorchester, the Win, South Winterbourne and Tadnoll Brook enter from the south, while the Frome itself meanders in an easterly direction to Poole Harbour, entering at Swineham Point just south of where the Piddle enters the harbour.

The Piddle rises at four major springs near Alton Pancras, initially flowing south before turning east at Puddletown towards Poole Harbour. The Devil's Brook and Cheselbourne Stream flow from the north and join the Piddle east of Puddletown. The Bere Stream flows south through Milborne St Andrew and Bere Regis to join the Piddle at Warren.

Poole Harbour itself is centrally located on the south coast of England, and is one of the largest and shallowest natural harbours in the world. It has an area of approximately 38 km² at high water spring tides despite land having been reclaimed on the northern shores in both historic and recent times. Within the harbour there are three main channel systems, the Wareham and North Channel, the South Deep and the Wych Channel.

The two other significant freshwater inputs into the harbour are the Corfe and Sherford Rivers. The Corfe rises north east of Kimmeridge and runs parallel to the Purbeck ridge to Corfe Castle. Here it turns north to flow across the heath, is joined by a number of streams and drains into the harbour through the Wych Channel. The Sherford rises in the coniferous plantations of Wareham Forest and flows south-east to Organford, eventually draining to Lytchett Bay.

Few watercourses cross the remaining plan area; the Swan flows across the Isle of Purbeck into Swanage Bay and several smaller streams drain to the southern coastal strip, including those at Lulworth and Kimmeridge.

The plan area lies entirely within the county of Dorset. The County Planning Authority is responsible for strategic development, and mineral and waste planning. The District Councils responsible for local planning and environmental health are East Dorset, North Dorset, Purbeck and West Dorset. The Borough of Poole is a Unitary Authority and performs both County and District roles for its area (see Map 1).

2.1 Settlements and commerce

The upper area is predominantly rural with no major industrial base. Agriculture is the economic mainstay of the area and modern farming methods have converted previously grazed pasture to arable land. The settlement pattern is still dominated by villages and small towns.

Dorchester, roughly central to the plan area, lies at the southern edge of the Dorset Downs. A typically English country town, Dorchester is full of charm and rich in history dating back to Roman times. Further east is Wareham, which founded in the Saxon period remains confined within the earth embankments of the 10th century town walls, with the rivers Piddle and Frome forming its northern and southern boundaries respectively.

Urban and industrial development in the area is largely centred on the north and east shores of the harbour, within the town and port of Poole, which was a significant medieval port. There are also industrial estates on the north-western shores at Holton Heath, major BP Amoco oil workings on the southern shores with well sites at Furzey Island and Goathorn, the BP Amoco gathering station at Wytch Farm, and a small well site on the coast at Kimmeridge.

To the south is the Isle of Purbeck with its exceptional coastline, which is a very popular tourist and recreational area. The ruins of the medieval castle dominate Corfe Castle at the top of the Corfe Valley. The town is now a tourist centre but, through the Middle Ages, was the centre for cutting, dressing and finishing Purbeck marble that was quarried around the town. Swanage Bay to the south-east is a substantial summer resort. Tourism is the largest employer and source of revenue in Dorset and much of this is centred on the coast. The Isle of Purbeck has also been strongly influenced by the presence of the military with firing ranges located both on land and out to sea.

2.2 Landscape character

A large part of the area is covered by landscape or agri-environmental designations including the Dorset Area of Outstanding Natural Beauty and the South Wessex Downs Environmentally Sensitive Area (see Map 2). The Countryside Stewardship scheme also has three target areas within the plan area (see Section 4.9). The coastal strip, up to 5 km inland, is designated Heritage Coast (see Map 2); the Purbeck Heritage Coast Plan guides management to achieve the heritage coast objectives of conservation, recreation, rural economic development and environmental health.

The former Countryside Commission's division of the country into landscape character areas offers a structured starting point for our description.

2.2.1 Dorset Downs and Cranborne Chase - The majority of the western area is in this character area. The Dorset Downs are a quintessentially English landscape; the dominant features are the open rolling chalk downland, the steep and dramatic sculpted scarp slopes and the attractive sheltered valleys. Woods tend to be small and dispersed over the area.

Prominent chalk hills, often capped with the remains of hill forts, are distinct features of the landscape. Large regular fields of arable farmland are common on the higher downs while towards the valleys the fields become smaller and pasture more predominant.

The Frome and its tributaries form a branching network of valleys with more deeply eroded and enclosed landforms, especially in the Cerne and Sydling Water valleys. Here the distinctive character is emphasised by the Cerne Abbas Giant carved out of the chalk high above the valley floor. In contrast the valleys of the Piddle typically have V-shaped upper valleys which wind through narrow gaps to open out dramatically.

2.2.2 Dorset Heaths - The Dorset Heaths lie to the south east of the Dorset Downs and extend south of Poole Harbour to the prominent chalk ridge of the Isle of Purbeck. Open heathland once dominated the area but agriculture, conifer plantations and urban development now largely fragment it. Extensive heathland areas only remain between Poole Harbour and the prominent ridge of the Purbeck Hills and within the army firing ranges at Povington, which are some of the most unspoilt heathland in the area.

Most of the area forms a shallow basin around Poole Harbour and is drained by the Frome and Piddle. The larger areas of heath have an open, wild character and are carpeted with heather, purple moor grass, bracken and gorse. Blocks of conifer woodland within the heathland form locally prominent landmarks. Open pastures, marshes and patches of broad-leaved trees in and around these plantations break up their dominance of the landscape. Surrounding the heathland is a transitional landscape of rolling hills with patchworks of small fields, frequent hedgerow trees and deciduous woodlands forming attractive mosaics of vegetation. The rolling landforms are broken occasionally by deeply incised valleys.

Several river valleys cross the area, of which the Frome and Piddle are the largest. By the time they reach the heathland area these rivers are slow moving and follow a meandering course through well-defined floodplains. The broad river valleys and floodplains, where the soils are more fertile, are mostly under permanent pasture.

At the coast the valleys open out into the reed beds, marshes and mudflats of Poole Harbour which dominate the coastal landscape. The harbour itself is dotted with small islands of which Brownsea is the largest. The southern shores are tranquil with their inlets, creeks, mudflats, sand-dunes and saltmarshes which grade into some of the most extensive and least disturbed heaths forming the edge of the Isle of Purbeck. The northern shore, with shipping lanes and leisure craft, is busy, bustling and dominated by the profile of the Poole and Bournemouth conurbations.

2.2.3 South Purbeck - The most southerly part of the LEAP area falls within this character area, which has a unique landscape of sharp contrasts. It is bounded to the north by the Dorset Heaths separated by the narrow Chalk ridge that extends across Purbeck, to the south the ridge shelters the Corfe Valley. Further south, is the open, windswept Purbeck Limestone plateau, ending in abrupt sea cliffs, while to the south-west is an undulating land-slipped area of Kimmeridge Clay.

Lowland farmland dominates the Corfe Valley. The villages are surrounded by long-established, irregular hedges and fields and small farmsteads are hidden in an intricate network of lanes. To the south and east, the fields are larger, extending up the slopes of the limestone plateau. The summit of the plateau is open mixed farm land, largely treeless, with fields littered with small, shallow quarries. To the south-west is a more gentle, undulating landscape where the Kimmeridge Clay has formed a coastal vale backed by a steep ridge of Portland Limestone.

The coastline embraces elements of all the inland landscapes. From the chalk cliffs high above Swanage Bay, a complex and dramatic coastline sweeps round to Worbarrow Bay. Sheer, white chalk and limestone cliffs contrast with sheltered coves at Chapman's Pool and Lulworth Cove, and extend out to sea, such as the stacks of Old Harry. To the west are the unstable cliffs at Kimmeridge.

2.3 Nature Conservation

The area contains one of the highest concentrations of designated areas for nature conservation in England, with numerous sites of local, regional, national and international importance. These sites cover a very wide range of habitats and contain an exceptional diversity of species, many of which now have restricted distributions.

English Nature have identified a series of Natural Areas covering the whole of England defined by the character of their wildlife, habitats and natural features. They provide a framework with which to focus efforts and resources on nature conservation priorities but are not formal designations. Five Natural Areas, including two marine Natural Areas, are of interest to this plan; the *South Wessex Downs* (north-west area), the *Dorset Heaths* (south-east area) and the *Isle of Portland and Purbeck* (south area), and the *South Dorset Coast*, and *Solent and Poole Bay* (see Map 3). These profiles help set out the nature conservation context of the area.

The most notable habitats of the South Wessex Downs include chalk grassland, chalk rivers and woodland with smaller areas of meadow land and wetland habitats that support a wide variety of associated species. Characteristic groups of species include downland herbs, bats and butterflies. Rare species for which the area is important include tuberous thistle, pearl-bordered and small pearl-bordered fritillary butterflies and stone curlew. More widespread species include the Adonis blue butterfly, barn owl, grey partridge, hare and water vole.

The Dorset Heaths cover the Poole Basin and the shoreline of Poole Harbour. The key habitats of the Poole Basin are lowland heathland, chalk rivers, reedbeds and the valley mires which are a special feature of the area. The heathland supports a substantial proportion of Britain's nationally scarce species, including species of moths, dragonflies, spiders and reptiles. Rare species for which the area is important include the sand lizard, smooth snake, great crested newt and the natterjack toad.

Poole Harbour is of exceptional ecological value and is protected by a multitude of conservation designations. Central to the ecological value are the intertidal mudflats, sandflats and marshes and the diversity of shoreline ranging from reed and marsh to sand and shingle.

The most extensive habitat of the Isle of Purbeck is the chalk grassland both inland and along the coast. Other notable habitats include ancient broad-leaved woodland, arable farmland and the coastal cliffs. The range of habitats supports a high diversity of plants and animals and characteristic groups of species include lichens, butterflies, birds and bats. Rare species include sea lavenders and a migrant dragonfly, the red-veined darter. Purbeck is the most important area in the country for the Lulworth skipper butterfly.

The South Dorset Coast maritime area lies between Studland Cliffs and Portland Bill extending some 12 miles out to sea. The cliffs and foreshore of this area are geologically some of the most famous in the world and the area contains a number of species which are highly valued, including bottlenose dolphins and puffins.

The area from Poole Harbour to Old Harry falls into the Solent and Poole Bay maritime natural area. It is a complex area of international importance for the range of marine and coastal habitats and species present. The area is at the transition between the warm and cold temperate regions with fauna and flora of both being present.

2.3.1 Designated areas - The EC Habitats Directive seeks to protect habitats and species of European importance by designating Special Areas for Conservation. Four candidate sites fall wholly or partly within the area; Dorset Heaths (Purbeck and Wareham) and Studland Dunes, Dorset Heaths, Isle of Portland to Studland Cliffs, and St Aldhelms Head to Durlston Head. Poole Harbour and the Dorset Heathlands are Special Protection Areas under the EC Birds Directive which seeks to protect wild birds and their habitats. Poole Harbour and the Dorset Heathlands are also Ramsar sites designated for their internationally important wetland features. All these sites are made up of existing Sites of Special Scientific Interest which are statutory sites of national conservation importance; a number of other areas are also covered by this designation including the River Frome downstream of Dorchester (see Map 3).

The Dorset and East Devon coast is currently being considered as a World Heritage Site, to be determined by UNESCO; its geology dates from the Jurassic period giving rise to landforms of world-wide importance. The designation, if conferred, would ensure the protection of the site and take account of the concerns of those that use, manage and own it.

Within the area there are also a number of National Nature Reserves, local nature reserves, Sites of Nature Conservation Interest and wildlife trust reserves. Voluntary marine nature conservation areas focus research and management attention on the needs of sensitive areas of the marine environment. There are two such areas along the plan coastline: the Purbeck Marine Wildlife Reserve and the Durlston Marine Research Area.

2.4 Land use

Approximately 70% of land in this area is farmed, with cereal, dairy, and cattle and sheep farming as the predominant activities. Set-aside land, on which agricultural activity is severely limited, has increased from a base of zero in 1987 to 1705 hectares by 1997.

	1997 Area (ha)	% of LEAP area
Grassland	28335	45.6
Rough Grazing	4864	7.9
Crops & fallow	23524	38
Farm woodland	1937	3.1
Other land	1594	2.6
Set-aside	1705	2.8

The above information was taken from census statistics provided by the Farming & Rural Conservation Agency on behalf of the Ministry of Agriculture, Fisheries and Food. The data are provided from parishes and do not correspond exactly to the plan boundaries.

The nature of the underlying geology has given rise to the development of a number of sand and gravel extraction pits in the vicinity of Wareham and Warmwell. There are also several ball clay and stone workings, including Purbeck Stone and limestone workings on the Isle of Purbeck.

There is a possibility of supplying future mineral needs by material dredged from the sea-bed, however the evidence is that there are few economic sources off the Dorset coast. There are however economic deposits within reach of Dorset's ports to the south-west of the Isle of Wight. The only currently operating aggregate wharf site in Dorset is within Poole Harbour.

Throughout the area there are a number of licensed waste disposal sites and transfer stations.

2.5 Archaeology

The area has a rich and varied archaeological heritage associated with populations dating back to prehistoric times. There are numerous Scheduled Ancient Monuments including extensive field systems, Neolithic pits and henges, Bronze Age barrows and the Iron Age hill forts of Maiden Castle and Eggardon. There are also a large number of unscheduled Ancient Monuments in the Purbeck area, which are listed but not designated. More recent features include the Norman Chapel on St Aldhelm's Head, the ruins of Corfe Castle and the early 19th century Clavell's Tower folly at Kimmeridge.

Holme Bridge, Broomhill Bridge, North Bridge (Wareham) and Wool Bridge were all in existence by the medieval period, and there is evidence of a Saxon-Norman fish trap at Wareham. In Saxon times, Wareham itself was an important port, and Swineham Point at the mouth of the Frome and Piddle is believed to be the site of a Roman Fort. It is defined as an area of high archaeological potential.

There were at least 10 water mills on the Frome and its tributaries between Cattistock and East Stoke, and 23 on the Piddle between Alton Pancras and Wareham. Uses included milling of flour, fulling and tucking of cloth, silk throwing, papermaking, powering of grinding tools and more recently driving turbines for electricity generation.

The majority of monuments are to be seen on the higher ground. Relatively little is known of the wetland archaeology of the area along the coast and around and within Poole Harbour, although, an Iron Age dugout canoe has been recovered from the harbour and there is evidence of a causeway of medieval origin or possibly earlier.

More recent points of archaeological interest include the old water-meadow systems along the Frome and Piddle, some of which are well preserved and allow us a glimpse of past agricultural practices. Many, however, are damaged or have been destroyed completely through changes in land use and farming practices.

2.6 Recreation

Many footpaths, bridleways and roads cross the area affording excellent views, especially of the harbour and coast. Although there are few places with a public right of access to the rivers, several paths follow, cross or come close to the Sherford, Corfe and Swan and access to streams, which drain the coastal strip, is possible in some locations. There is also access to the rivers Frome and Piddle in and around Wareham, in particular the north bank of the Frome.

Wareham Common, downstream of Baggs Mill on the Piddle, is a popular area for walking and picnicking, and locals use the river for swimming. Wareham Forest, managed by Forest Enterprise, is also used for a variety of recreational pursuits.

The Wareham Forest Way also passes through the Piddle valley close to Wareham.

The Dorset Coast Path, part of the South West Peninsular Coastal Path, is popular with long distance and casual walkers; heavy use in some areas has caused erosion and disturbance to wildlife. Some of the path passes through the Ministry of Defence ranges, and access can be restricted at times. Horse-riding, mountain-bike riding, birdwatching and climbing have all grown in popularity in recent years and take place wherever there is suitable public access. In Purbeck some paths have already been created which link the coast path with inland routeways, notably the Purbeck Way which also adjoins the River Frome for a short distance at Wareham.

Water-based recreation is very limited on the majority of watercourses within the area because the rivers are generally small and access agreements have not been made with the owners. A public right of navigation of the Frome exists between Poole Harbour and the Wareham by-pass. We own and administer 129 non-residential moorings on the Frome, and issue mooring licences to a number of private operators.

There are several major bathing beaches in the area, including Durdle Door, Lulworth Cove, Swanage, Studland and Poole Shore Road Sandbanks, which are heavily used during the summer months; 12 are designated as EC Bathing Waters under the EC Bathing Waters Directive.

Coastal waters and Poole Harbour are used intensively for a wide range of recreational pursuits including swimming, diving, angling, sailing, canoeing, pleasure boating, sail boarding, water-skiing, jet-skiing and power boating. The harbour is home to several marinas and boat havens, and numerous moorings. The Poole Harbour Aquatic Management Plan and Poole Harbour Management Policies have been produced by the Poole Harbour Steering Group in order to integrate all the activities within the harbour.

There are a number of sites where recreation, education and conservation facilities have been specially provided. These include the Dorset County Council country park at Durlston, the Royal Society for the Protection of Birds reserve at Arne, the National Trust properties of Brownsea Island and Studland, and the Borough of Poole's Upton Country Park. The Kingcombe Centre is also within the area.

2.7 Geology

The upper area as far south as Puddletown and Winfrith Newburgh is dominated by the Chalk which supplies water to feed the upper catchment tributaries. The Chalk is underlain by Greensand and a layer of relatively impermeable Gault clay. The top of the Frome catchment is more complex because of its geological faults, and a variety of clay outcrops are present.

Further south the Frome and Piddle flow over a more recent geology of Reading Bed sands and gravels, London Clay and the soft sandy strata of the Bagshot Beds. The low-lying land around Poole Harbour is also underlain by the Bagshot Beds and in turn the London Clay, the Reading Beds, and the upper Chalk.

To the south of the harbour these layers form into a fold that runs east west and raises the chalk to form the high narrow ridge of the Purbeck Hills. The fold persists westward to Lulworth Cove and Durdle Door. Further south, the strata bend back and include the Wealden Beds (clays and sands), the Purbeck and Portland limestones, the Portland Sands, and at the base the Kimmeridge Clay with its beds of oil-shale.

Within Poole Harbour itself, subtidal bedrock is rare, with the sandstone outcrop in the Haven Channel being the only one of significance. Shellgravel and sand are common substrates in the harbour channels. Beach material is varied, including mud, sandy shingle and boulders.

2.8 Hydrogeology

The Chalk and the upper Greensand are classified as major aquifers (layers of water-bearing rock). Such formations contain large quantities of water, and because of their nature, allow it to be easily abstracted. The strata are highly productive and of regional importance and are used for significant abstractions of drinking water.

Abstractions from groundwater for public water supply are largely taken from these aquifers with areas of particular significance being the upper and middle Piddle and in the vicinity of Dorchester.

The remaining beds are classified as minor aquifers, which can support locally important abstractions, or non-aquifers which are only capable of supporting very minor abstraction.

2.9 Rainfall

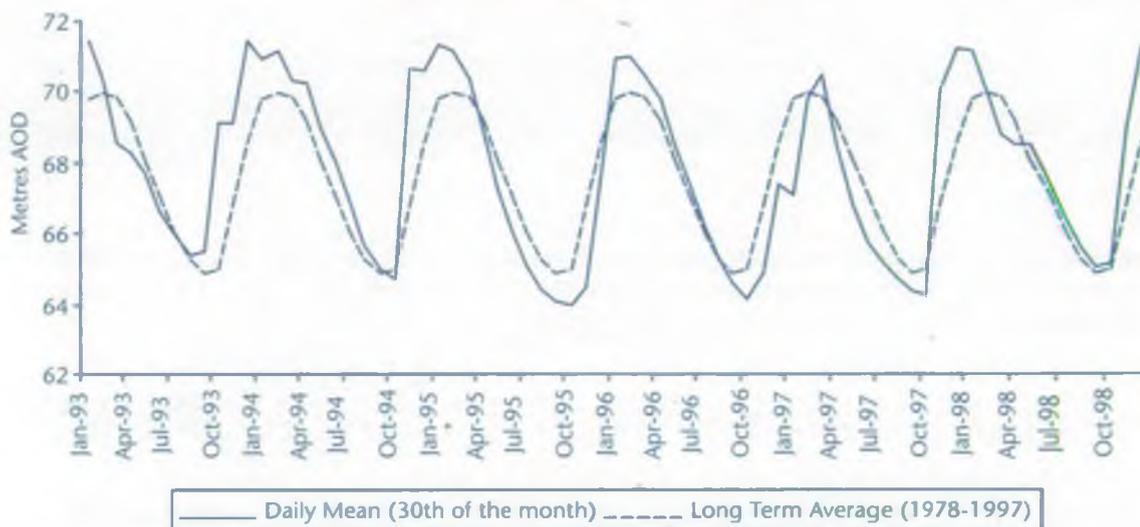
Rainfall is currently measured within the area at 16 Meteorological Office approved daily gauges. There are also three telemetry rain-gauges, which record rainfall intensity.

The rainfall distribution in the area shows a pattern prevailing in the British Isles; the highest totals tend to fall at the western (upper) end of the Frome catchment, whilst the lowest totals are generally experienced in the east of the area, around Poole Harbour. Annual average rainfall totals (Meteorological Office long term average 1969 to 1990) range from 1033 mm at Hooke through 948 mm at Puddletown, to 776 mm in Poole.

2.10 Groundwater

Water levels in the aquifers underlying the area are measured on a monthly basis at 28 locations. The groundwater level in the vicinity of Dorchester is also continuously monitored at a borehole just south-west of the town, at Ashton Farm.

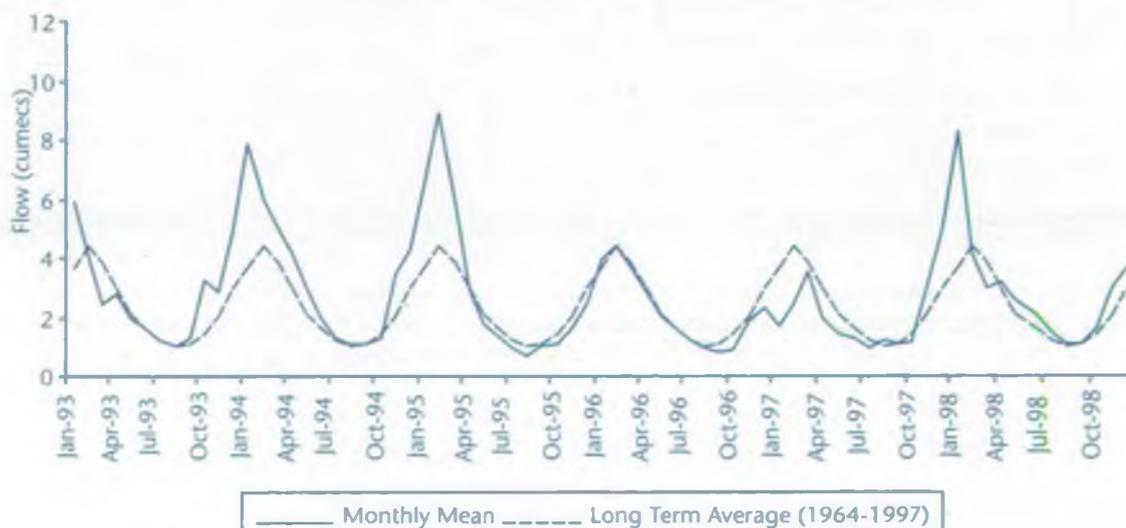
Groundwater Level at Ashton Farm (Chalk)



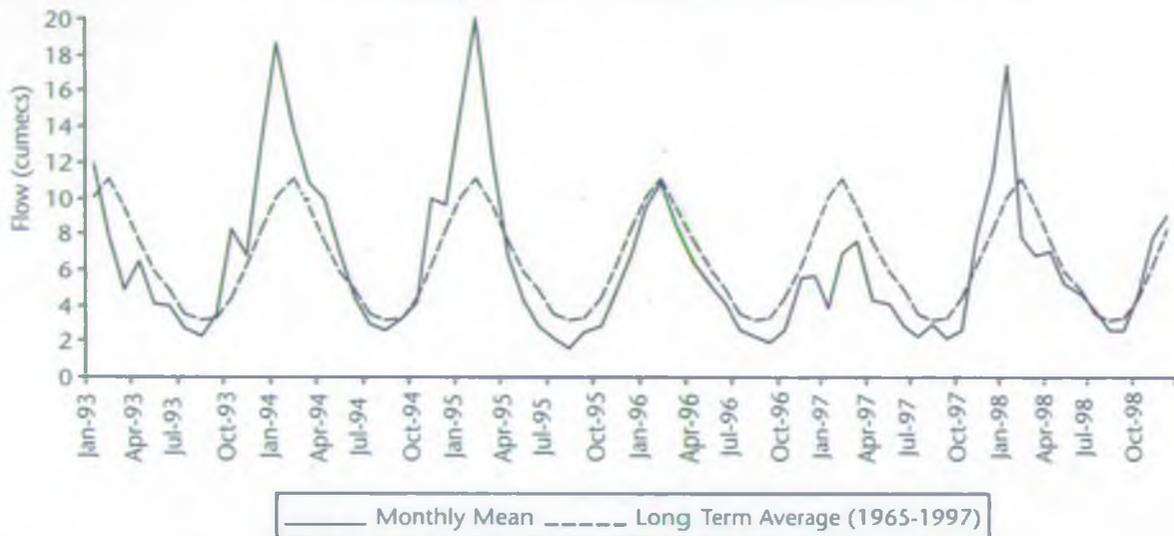
2.11 River flow

River flow is continuously measured at 18 gauging stations in this area; river levels are recorded at a further three locations.

River Piddle at Baggs Mill Gauging Station



River Frome at East Stoke Gauging Station (Flume & Weir)



2.12 Tides

Tidal ranges throughout the area are small, and Poole Harbour is unusual in experiencing secondary high water in each tidal cycle. Tidal currents are important for the movement of sediments in the harbour, with speeds up to 4.5 knots on spring tides in the Haven Channel, and in most channels exceeding 0.5 knots. Circulation within the harbour is complex, and flushing is likely to be highly variable depending on the location. Sediment load is low throughout the harbour, mainly as a result of limited wave impact due to the sheltered nature of the harbour.

3. Issues and proposed actions

The Agency's principal and immediate environmental concerns are stated in our national strategy *An Environmental Strategy for the Millennium and Beyond* and relate to nine themes which represent the Agency's holistic approach to environmental management and are as follows:



managing our water resources



managing our freshwater fisheries



enhancing biodiversity



conserving the land



managing waste



delivering integrated river-basin management (includes water quality)



regulating major industries



improving air quality



addressing climate change

We will deliver this strategy at a local level by dialogue between ourselves and the various organisations involved in the protection and management of the environment.

We spend some £600 million each year on protecting and improving the environment. Approximately 75 % of this is derived from our own charges, principally in the form of licence fees, and the flood defence levy on local authorities which covers part of the cost of our Flood Defence function. The remainder is funded by Government grants; our main sponsor in Government is the Department of the Environment, Transport and the Regions. The Agency also has links to the Ministry of Agriculture, Fisheries and Food and the Welsh Office.

All our charges are reviewed annually and are assessed through consultation. Charge proposals are subject to approval by the Secretary of State and Regional Flood Defence Committees approve flood defence levies.

This translates into a budget of around £4.5 million each year for the South Wessex area. A large proportion of this is used to undertake work required of us by legislation and regulation, and by the organisation. This includes committing substantial resources to everyday monitoring and management of the environment. Remaining resources are used to undertake other environmental works throughout the area on a priority basis. Throughout the year these priorities can change depending on funding availability, Government policy or new work that has a more urgent priority.

LEAP actions cut across all the areas of our work and this Consultation Draft is our initial view of the issues facing this LEAP area and proposed actions for their resolution. The LEAP Plan will present a programme of agreed actions and will give an indication of the cost of each action to the Agency. The programme will consist of work the Agency would wish to undertake in the next five years. However, it is likely that due to other priorities and funding availability not all the actions will be undertaken. Some actions may also require feasibility studies and cost-benefit appraisals prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be justified; this will be reported via the LEAP.

Nationally the Agency is developing a methodology to prioritise agreed LEAP actions. The results of the prioritisation will be taken forward to the corporate planning process, allowing us to report more clearly on those actions that will be undertaken and when. The results of the consultation on this LEAP will influence the prioritisation process which will be reported on in the LEAP Plan and subsequent annual reviews.

The partnership approach of achieving environmental improvements is also promoted by the LEAP.

For the purposes of this report the tables in the following sections show:

- organisations who may implement the proposed activity
- a proposed timetable for each activity indicating the financial years (April-March) in which the work would be done. A dot indicates in which financial year, or over which period of financial years, work is planned to be undertaken. For example '99 is the financial year April 1999 to March 2000

Please refer to the Glossary (Section 6) for the definition of acronyms and abbreviations and Appendix 5.1 for further information on the Agency's duties, powers and interests.

Although the issues raised have been placed under one of the above nine themes, it must be recognised that the multi-functional nature of much of our work means that many actions will be relevant to several of the key concerns. Reference to this has been made where appropriate, using the icons representing the nine themes.

A copy of the booklet, *An Environmental Strategy for the Millennium and Beyond* is available from local Agency offices or on our Internet site at <http://www.environment-agency.gov.uk>.

3.1 Managing our water resources

The rock underlying much of the area contains large volumes of high quality water, providing a source for watercourses and for a variety of uses including public and private water supplies, agriculture (including aquaculture) and industry. Abstraction of water to supply these needs, with a few exceptions, is licensed by the Agency with careful regard to environmental needs.

There are concerns that in some locations too much water is abstracted, thereby causing and prolonging periods of unacceptably low flows in rivers and the drying out of associated wetlands. Plans are in place to examine such issues more closely. Indeed under the EC Habitats Directive any proposals or applications for new authorisations, including water abstraction licences, which may have an effect on the conservation interests of Special Areas of Conservation or Special Protection Areas, will be subject to an assessment process. We are also obliged to review existing licences which may be affecting these sites (see Section 3.3.1).

Wessex Water currently meet the majority of the demand for public water supply from a number of groundwater sources throughout the area. However, there are a few households on the border of the LEAP area which are supplied by Bournemouth and West Hampshire Water Company.

3.1.1 Securing future public water supplies - Water resources planning for both the water companies and the Agency is based on water resource zones. They can cover large geographic areas extending over and beyond administrative and natural catchment boundaries. The LEAP area forms part of Wessex Water's South Resource Zone. It provides an integrated network of sources, including boreholes and an abstraction from the Hampshire Avon which transfers some water into the LEAP area. There is also some water exported to neighbouring zones. It is therefore difficult to assess the precise impact of proposed development on local water resources solely within the LEAP area.

The availability of water resources is an increasingly important issue across England and Wales. Whilst the Government has said that it does not expect water resources to be a reason for development proposals being rejected, the provision of adequate water supplies could have an influence on the timing of developments. The Agency comments on county and district plans, and individual planning applications with respect to water resources and water efficiency. However we can only comment on water resources in general as the specifics depend on which sources the relevant water company would plan to use to supply the development. In the light of this we would wish to see water companies added to the land use planning list of statutory consultees (see Section 4.2).

We will continue to monitor direct abstractions by individuals, agriculture and industry and have regard to the net take-up of licensed volume and its effect, including any real or potential local environmental problems. Future abstraction needs will continue to be addressed through the abstraction licensing system (see Appendix 5.1).

Before there is any further development of new resources we would have to be satisfied that the water companies have implemented a range of appropriate demand management and resource management options and have reduced their leakage to an economic level. Demand management involves a number of initiatives including metering; all new domestic properties are metered and Wessex Water customers can have their homes metered free should they wish. The water companies also have a duty to apply and demonstrate water efficiency to their customers and to promote the efficient use of water by their customers. Wessex Water's Water Efficiency Plan details ways in which both domestic and business customers can save water. This and other leaflets on water efficiency are available from Wessex Water.

The current round of asset management planning (see Section 4.7) required the water companies to revise their demand forecasts, review their resource availability and consider any potential resource options to meet forecasted deficits within the planning horizon. In parallel with this, in March 1999, we received the water resources plans from water companies. They included demand forecasts compared with available resources up to 2025. To meet any imbalance identified between supply and demand, potential demand and resource management options, including leakage reduction, have been considered. Resource development options are also considered where necessary. In June 1999, we responded to the Government on these plans in the report, *Planning Public Water Supplies* (see Section 4.7).

Within the LEAP area, options considered by Wessex Water in their water resources plan include the existing licensed source at Lulworth. However, this has not yet been developed and is not planned to be used in the near future. Another potential option being explored within the area by Wessex Water is Aquifer Storage and Recovery. This involves injecting fresh water into the aquifer when spare resources are available, and abstracting it again later when other resources are unable to meet demand. A leaflet on the trials is available from Wessex Water.

Actions	By	99	00	01	02	03
1.1 Revise the Regional Water Resources Development Strategy based on information received in the companies' water resources plans 	Agency		●			
1.2 Work in conjunction with Wessex Water to identify sustainable spare resources to inject underground for storage and subsequent recovery for public water supply 	WWSL Agency	●	●			
1.3 Modify and recommence continuous flow measurement at Winfrith Newburgh. <i>This will provide base line flow data on the River Win prior to any development of the licensed source at Lulworth Springs</i> 	Agency	●				
1.4 Investigate installation of continuous flow measurement at Lulworth Springs gauging station 	Agency	●	●			

3.1.2 Water resource investigations on the River Piddle catchment - Since the mid 1980s, public concern has been expressed about the effect that abstraction for public water supply is having on the Piddle. It was felt that spring flows had been significantly reduced over a considerable period of time and that flows and levels in the river were lower and stayed lower for longer than they had in the past.

This concern over flows resulted in a series of investigations to determine the impact of key abstractions on flow and their dependent ecosystems. These investigations concluded that abstractions at Alton Pancras, Briantspuddle and Dewlish were significantly reducing flow in the river with accompanying threats to the ecology and fishery.

In the upper Piddle, abstraction reduction trials were carried out at Alton Pancras in 1997 and 1998. These were in addition to the stream augmentation trials undertaken, further downstream, at White Lackington in 1996 and 1997. We will now review the data collected to assess the full impact of the trials on groundwater levels and stream flows. The aim of these trials is to test possible solutions in order to achieve target flows at Piddletrenthide and Piddlehinton.

In the middle Piddle we have successfully negotiated, with Wessex Water, a change to the conditions of the previously existing abstraction licensed at Briantspuddle. The new licence now requires Wessex Water to supply up to 9 MI/d of

stream augmentation when flows at Briantspuddle fall to pre-defined thresholds. The summer of 1998 was the first season of operation of the new arrangements. We now need to undertake a post-project appraisal to assess the impacts of the new flow regime and this will include ecological monitoring.

On the Devils Brook Wessex Water have been co-operating with us by supplying additional stream augmentation from Dewlish Pumping Station each summer since 1995. The effect has been to maintain a flow in the village for about three extra months a year. Whilst this is considered a temporary mechanism for improvement, we are still seeking ways of extending this benefit to cover the whole year and make any subsequent arrangement permanent. A new gauging station was commissioned in Dewlish village in 1997 in order to trigger the augmentation and monitor the improvements in flow.

A number of unauthorised ponds and diversions still exist on the affected reach near Dewlish which complicate and affect the efficiency of stream augmentation arrangements. We intend to review these operations to ensure fairness is achieved for all parties whilst restoring flows to a level which will promote ecological improvement and provide an acceptable level for amenity purposes within an appropriate cost-benefit framework.

Actions to address the issues on the Piddle and Devils Brook have been included in the environmental obligations imposed on Wessex Water by the Government as part of the current round of price reviews by the Office of Water Services and asset management planning for water companies (see Section 4.7).

Actions	By	99	00	01	02	03
1.5 Carry out post-project appraisal to assess the impact of the new stream augmentation regime at Briantspuddle 	Agency	●	●	●	●	●
1.6 Evaluate the effectiveness of the abstraction reductions at Alton Pancras, as undertaken in 1997 and 1998, to achieve the specified target flows 	Agency	●	●			
1.7 Assess the impact of the abstractions for stream support, at White Lackington, on river flows and groundwater levels in the short and long term 	Agency	●	●			
1.8 Determine the most appropriate combination of options to resolve the issues in the upper Piddle 	Agency	●	●	●		
1.9 Evaluate the inter-relationship between the abstraction reduction at Alton Pancras and the stream support at White Lackington 	Agency WWSL	●	●			
1.10 Ensure long-term solutions are implemented by permanent changes to existing abstraction licences or authorisation of new ones 	Agency WWSL	●	●	●	●	●
1.11 Review the existing augmentation arrangements on the Devils Brook and negotiate a permanent solution with Wessex Water to remedy the low flow problems 	Agency WWSL	●	●	●	●	●
1.12 Liaise with users on the Devils Brook and propose an authorisation strategy 	Agency Land-owners	●	●	●	●	●

We will also want to clarify any water resource issues in relation to the Bere Stream Fen and Morden Bog Sites of Special Scientific Interest, following concerns raised by English Nature.

Actions	By	99	00	01	02	03
1.13 Consider water resource issues with regard to the Bere Stream Fen and Morden Bog Sites of Special Scientific Interest 	Agency EN		●	●		

3.1.3 Water resource investigations on the River Frome catchment - The *South Winterbourne* exhibits a complex pattern of drying up during a dry summer; the first 2 km is normally dry and stream augmentation, provided by Wessex Water, maintains a flow from Winterbourne Abbas to Martinstown. Downstream of Martinstown sink holes in the river bed deprive the stream of any further flow until reliable springs around West Stafford ensure a continuous flow in the last kilometre of the stream.

The drying up of the middle reaches is regarded largely as a natural phenomenon but work continues to monitor the behaviour of the winterbourne and its impact on the ecology of the stream to establish a better understanding to help develop flow management and catchment strategies.

Actions	By	99	00	01	02	03
1.14 Continue to monitor the behaviour and ecology of the South Winterbourne 	Agency	●	●	●	●	●
1.15 Review hydrogeological work undertaken in the early 1990s by the National Rivers Authority 	Agency		●	●	●	●

At *Frome St Quinton* and *Woolcoombe* we have, in conjunction with English Nature, looked at the potential risk to Sites of Special Scientific Interest and concluded that the small abstractions taking place there pose only a very small risk. However, we will continue to ensure that licensed quantities are not exceeded via our routine enforcement work, and in the case of *Frome St Quinton*, review the appropriateness of current abstraction licence conditions.

We will also want to clarify any water resource issues in relation to Aunt Mary's Bottom and East Stoke Fen Sites of Special Scientific, following concerns raised by English Nature.

Actions	By	99	00	01	02	03
1.16 Review current abstraction licence conditions in relation to the Frome St Quinton Site of Special Scientific Interest 	Agency Licence Holder EN		●	●	●	●
1.17 Clarify water resource issues with regard to Aunt Mary's Bottom and East Stoke Fen Sites of Special Scientific Interest 	Agency EN		●	●	●	●

The *River Hooke* at Hooke is subject to regular fluctuations in flow due to the operations of upstream abstractions. It is not clear what impact this is having on the ecology of the watercourse; further investigations are required.

Actions	By	99	00	01	02	03
1.18 Investigate impact of flow fluctuations on the Hooke Stream and negotiate accordingly with licence holders over mitigation options  	Agency Licence holders		●	●	●	●

Concern has been expressed by residents at Stratton regarding flows in the *River Wrackle*, where traditionally water has been diverted from the Frome to maintain a flow in the Wrackle. In recent dry summers this additional flow has percolated through the stream bed resulting in severely depleted flows and fish in distress. We need to consider this concern and whether there is sufficient justification for artificially augmenting the flow in what is considered to be a natural winterbourne.

Actions	By	99	00	01	02	03
1.19 Undertake river corridor and ecological survey to establish conservation importance of the Wrackle   	Agency		●			
1.20 Consider future water management issues with local landowners   	Agency Land-owners		●	●	●	●

Considerable effort continues to be put into the ecological monitoring of watercourses as an integral part of the on-going water resource studies. Winterbournes, stretches of which are monitored as part of these studies, are included under the UK Biodiversity Action Plan for chalk streams (see Section 3.3) as one of the 16 most threatened habitats in the country. Therefore impacts on the natural ecology need to be identified. Consideration will be given to developing an overall strategy for the monitoring of headwaters, including winterbournes, in the LEAP area (see Section 3.3).

3.1.4 Protection of groundwater - With the importance of groundwater to the area there is a need to prevent contamination, for example from fuel spillages, and, if it has occurred, to ensure that effective remediation work is undertaken. Such remediation is costly and in some cases may be impossible.

The Agency's *Policy and Practice for the Protection of Groundwater* classifies groundwater vulnerability to pollution based on parameters such as the nature of overlying soil, rock strata and depth to the water table. Source protection zones for public water supply and major sources have been produced and we use these, with the policy statements, to guide planning and development around each source to minimise the risk of groundwater contamination. Source protection zones are to be regarded as additional to the general consideration of overall resource protection.

We also have a requirement to monitor the quality of groundwater through a number of responsibilities. These include our general duty to monitor controlled waters and requirements under the EC Nitrates Directive (see Section 3.6.3). There is no nationally agreed network for groundwater sampling hence data for the plan area is limited despite significant areas of major aquifer.

Given the lack of data we are not able to comment authoritatively on the general state of groundwater or note any significant trends in quality. It is proposed to begin development of a more rigorous network, based where possible on existing supply boreholes, in line with recommendations made by the British Geological Survey in 1994. The timetable for this development has not yet been determined.

Actions	By	99	00	01	02	03
1.21 Improve collection and reporting of groundwater quality data  	Agency					

We routinely monitor groundwater level at a number of sites throughout the area, see Section 2.10.

3.2 Managing our freshwater fisheries

The Frome and the Piddle are well known for salmon, migratory trout and brown trout fisheries. The best of the salmon and migratory trout rod fishing takes place on the Frome downstream from Pallington and on the Piddle downstream from Trigon. The Piddle is renowned for its native brown trout populations that are present throughout the river and merit a high level of protection. Several large fish farms have also been developed in the area.

Salmon have been recorded in the tidal reaches of the Sherford, and it is likely that they are also occasional visitors to the tidal reaches of the Corfe. Brown trout dominate the Swan and the population of the non-tidal Corfe is composed entirely of brown trout with a large migratory component. Both migratory and non-migratory trout are present throughout the Sherford.

The Frome and the Piddle do not have particularly diverse coarse fish populations. Grayling fishing is popular on the Frome around Dorchester but perhaps surprisingly grayling are absent from the Piddle. The coarse fishing is largely restricted to the Frome downstream of Wool and usually only in the winter because the river is mainly controlled for salmon angling. All fishing in the area is privately owned, although we own a fishery on the tidal reaches of the Frome and the Piddle. The upstream extent of our ownership on the Frome is *Wareham Pool* and on the Piddle just upstream of *North Bridge, Wareham*. Downstream ownership extends, in both cases, to the white posts at the start of the Wareham Channel.

Poole Harbour contains a diverse population of marine fish for which we have no statutory responsibilities. Mullet and flounder are found in the Corfe together with bass in the tidal reaches of the Sherford, Frome and Piddle. The Southern Sea Fisheries District Committee is the statutory Sea Fisheries authority in Poole Harbour, however the Agency does have regulatory responsibility for eels, salmon and migratory trout in the harbour. We also own the lower Frome and Piddle and hence can control all types of fishing.

A limited amount of licensed netting for salmon and migratory trout takes place in Poole Harbour, in the Wareham Channel. There is relatively little eel fishing on the Frome and Piddle although there are a number of eel fishermen in the harbour. The harbour also supports an important commercial fishery for a variety of wild and farmed shellfish particularly the native and Pacific oyster, clams, mussels and cockles. Edible crabs and prawns are also taken.

3.2.1 Management of salmon stocks - Salmon catches on the Frome declined to their lowest level for 42 years in 1991. Unlike other local stocks, which declined in the same way, the Frome has since shown some signs of a recovery, with catches in 1998 at about 50 % of the long-term average.

The decline on the Frome, as with other rivers, can be divided into two components, a long-term decline of spring-running salmon and a shorter-term decline of later-running fish. Despite the decline in catches, the stock has continued to meet its spawning target.

In response we produced the *Frome Salmon Action Plan* which highlights what are considered to be the major potential threats to the salmon population. Following consultation the final plan was published in November 1998. Further information on the Salmon Action Plan is available from our Blandford Office. The proposed actions, if taken forward, should ensure that the stock continues to meet its spawning target and that the multi-sea winter component can grow to an acceptable level.

The *Piddle Salmon Action Plan* is scheduled for consultation and publication in 2000.

Since January 1999, the Agency has been able to enforce legislation under Section 14 of the Salmon and Freshwater Fisheries Act (1975) (amended by the Environment Act (1995)), regarding the screening of fish farms and other water utilities. We will be ensuring that adequate devices are in place, which should prevent the entrapment of wild salmonids and the escape of farmed fish. All the qualifying sites in the area have been inspected and some recommendations made; annual reviews of these sites will be undertaken.

Actions	By	99	00	01	02	03
<p>2.1 Implement Frome Salmon Action Plan. <i>Some actions within the Salmon Action Plan have funding, however others do not. In particular the counters at the Institute of Freshwater Ecology require funding to guarantee future operation. The Action Plan will undergo revision five years from the date of publication</i></p>  	Agency Partners	●	●	●	●	●
<p>2.2 Prepare and implement the Piddle Salmon Action Plan</p>  	Agency		●	●	●	●
<p>2.3 Use PHABSIM to determine flow requirements and demonstrate impact of low flows at Briantspuddle. <i>Work at Briantspuddle has been completed and a post-project appraisal will be undertaken</i></p>  	see Action 1.5					
<p>2.4 Undertake annual reviews of qualifying sites under Section 14 of the Salmon and Freshwater Fisheries Act as amended by the Environment Act</p> 	Agency	●	●	●	●	●

The salmon angling byelaws were reviewed as part of the Frome Salmon Action Plan. We proposed no changes to the byelaws but drafted a code of practice with the Frome & Piddle and West Dorset Fisheries Association. However, this has been overtaken by new national byelaws which came into force in April 1999. An extensive campaign has been undertaken to inform fishermen of the new measures, aimed at combating the decline in stocks of early-running salmon. Detailed versions of the new byelaws are available from local Agency offices.

Although the Frome stock is above its spawning target, multi-sea winter (spring) salmon are under threat and require protection. The national byelaws introduced compulsory catch and release up to the 16th June, but many multi-sea winter fish are caught after this date. In liaison with the Frome & Piddle and West Dorset Fisheries Association we will be encouraging anglers who catch these fish after 16th June to return them to the river. This is an action in the Frome Salmon Action Plan.

3.2.2 Management of the brown trout fishery - Alleviation of the low flow problems (see Section 3.1.2) in the Briantspuddle area of the River Piddle has now been achieved, and the response of the trout population and fishery will be monitored.

The Agency has also recently agreed, with English Nature, a policy for the stocking of brown trout within the River Frome Site of Special Scientific Interest that is aimed at protecting the genetic integrity of wild populations. Downstream of 9-hatches, where there are valuable populations of sea trout and where little stocking has taken place in the past, we will issue consent only for the introduction of sterile trout which cannot interbreed with wild fish.

In collaboration with English Nature, angling organisations and riparian owners a number of habitat improvement projects have been carried out downstream of Dorchester on the River Frome at Lewell Mill, West Stafford and Bockhampton. These projects have utilised natural materials in the form of pollarded willow and faggot material to provide in-stream structures to diversify flow and improve the riverine habitat for the benefit of fisheries and general conservation.

The river rehabilitation projects on the Frome have promoted the value of fencing to protect the river habitat where appropriate, particularly where there are high cattle and sheep densities resulting in bankside damage. We recognise that fencing is not always the best solution and one project at Briantspuddle has used in-river willow mattresses to improve the habitat and potentially prevent cattle damage to the banks and river.

The Corfe and Sherford also support populations of brown trout with very a large anadromous component, i.e. fish that live in the sea but enter rivers to breed. These stocks are considered to be pristine and are not believed to be subject to any major constraints and they need to be given a high degree of protection due to their intrinsic conservation value.

Actions	By	99	00	01	02	03
2.5 Flow management policies should attempt to meet the proven requirements of wild trout populations. <i>Work at Briantspuddle has been completed and a post-project appraisal will be undertaken</i>	see Action 1.5					
 						
2.6 Promote local brown trout habitat improvement	Agency EN Owners	●	●	●	●	●
 						
2.7 Restore and protect spawning and nursery areas by gravel cleaning	Owners	●	●	●	●	●
 						
2.8 Control the stocking of brown trout through Section 30 consents	Agency EN	●	●	●	●	●
 						
2.9 Investigate the impact of cormorants and other fish-eating birds. <i>This is part of a National Research and Development Project looking at the impact and control of fish-eating birds and is due to report by the end of 1999</i>	Agency	●				
						
2.10 Carry out strategic stock surveys; this is a regular five-yearly survey and includes coarse fish. <i>A survey is being undertaken this year and a report will be available in early 2000</i>	Agency	●				
						

3.2.3 Management of coarse fish stocks - The Frome does not have a very diverse coarse fish population; with the exception of grayling and pike most coarse fish are restricted to the river downstream of Wool. The second full survey of the Frome, including coarse fish, has been carried out during 1999 (see Action 2.10). The coarse fish populations of the other rivers in the area are even less diverse. The needs of coarse fish species are taken account of when Agency works are planned, or works by others consented. Our increasing knowledge of their habitat requirements is helping to inform the process.

The performance of the Poole Harbour eel fishery is still cause for concern. Eel stocks in the Frome and Piddle also appear to be on a downward trend, consistent with the decline being observed throughout Europe, which is probably due to marine factors. A new Research and Development project will be looking at the problem on a national and international scale.

In addition, we are concerned about the operation of fixed eel-traps on other species of fish. Inspections of eel-traps are carried out during the autumn operating period in order to collect information on operating arrangements and the by-catch. We advise operators and owners on how to minimise the impact on other species.

Actions	By	99	00	01	02	03
2.11 Use the findings of the Research and Development project into declining eel stocks to guide future initiatives. <i>We will be kept up to date with the on-going research</i>	Agency	●	●	●		
						
2.12 Continue eel-trap inspections	Agency	●	●	●	●	●
						

3.2.4 Minor species - While the rivers within the area do not form part of a proposed Natura 2000 site they do contain certain Annex II species listed under the EC Habitats Directive as qualifying interests (see Section 3.3.1). Atlantic salmon, bullhead and three lamprey species (brook, river and sea) are found in both the Frome and Piddle. Salmon and river and sea lamprey use Poole Harbour as a migration route and are listed as species of conservation concern under the UK Biodiversity Action Plan (see Section 3.3). Shad, found in the lower Frome and Poole Harbour and adjacent coastal waters, are listed as a priority species under the UK Biodiversity Action Plan, and we therefore have certain responsibilities for their protection.

Nationally, Biodiversity Action Plans for the protection and enhancement of these species will be prepared; until that time we will adopt best practice for their protection based on our current knowledge of their requirements. In the case of Atlantic salmon, action plans are already being produced for the principal rivers in England and Wales, including the Frome and Piddle (see Section 3.2.1).

Actions	By	99	00	01	02	03
2.13 Monitor Lamprey and Shad as part of on-going survey work 	Agency	●	●	●	●	●
2.14 Distribute identification leaflet and recording form for Shad to all involved in commercial fishing to confirm identification and distribution. <i>The leaflet will also give details on protected status and rarity</i> 	Agency	●				

3.3 Enhancing biodiversity

Biodiversity is defined as the variety of life and reflects the huge variation seen in the natural world, between habitats and species, and landscapes and genetics. Conservation of biodiversity seeks to safeguard this variety.

The LEAP area is exceptionally rich in biodiversity. The Purbeck area, with a mosaic of habitats ranging from heathland to coastal, supports such rare and threatened species as the sand lizard, raft spider, Lulworth Skipper butterfly and the Dartford Warbler. The coastal diversity and wider area are equally interesting as is highlighted by the numerous high-level conservation designations within the area; see Section 2.3.

In 1994, the Government set up the Biodiversity Steering Group as its response to the Rio Earth Summit held in 1992, an international initiative for conserving biodiversity. The Steering Group led to the production of the *UK Biodiversity Action Plan* (UK BAP) which produced targets for the most threatened habitats and species in the UK. These are known as *priority habitats and species*. In addition plans are being and have been drawn up for a number of other habitats and species, known as *habitats and species of conservation concern*. Action Plans for terrestrial and freshwater habitats, and for vertebrates and vascular plants were published in 1998.

Of those priority habitats and species, we were named as a contact point for chalk river habitats and eutrophic standing waters and 13 species, six of which have been recorded in the South Wessex area. All six of these species, the water vole, otter, white-clawed crayfish, depressed river mussel, fine-lined pea mussel and the southern damselfly are known to be or have been recorded historically in the LEAP area. As a lead contact we are responsible for stimulating action to achieve targets, monitoring results and reporting progress to the national groups.

The Agency also has responsibilities for other *priority habitats and species* and *habitats and species of conservation concern* in order to help ensure their future protection.

Work has also been on-going at a regional level to translate some of the UK actions into specific actions on the ground. This has resulted in the production of the *South West Regional BAP* (South West BAP). This contains 31 target-based action plans for some of the region's most threatened habitats and species. These spell out in clear terms what needs to be done, and by whom, if biodiversity in the South West is to be conserved, and where possible, enhanced.

We cannot support all of these, but where we have been assigned actions and responsibilities under the numerous Biodiversity Action Plans in the area, or where our activities underpin the survival of these important habitats and species, we have an important role to play. The following is a description of contact point habitats and species found in the LEAP area, along with a table highlighting other habitats and species for which we have responsibilities.

Chalk river habitats - watercourses with a characteristic plant community often dominated by river water crowfoot (*Ranunculus*), species of starwort, watercress and lesser water parsnip. They are groundwater fed, producing clear waters and a stable flow and temperature regime, providing conditions that support a rich diversity of invertebrate, plant and fish life.

The River Frome is considered one of the best examples of a chalk stream habitat in Britain, and as such has been designated a Site of Special Scientific Interest by English Nature. Other chalk streams include the Piddle and its tributaries.

The winterbourne stretches of chalk streams often run dry in summer as water levels in the ground fall. A characteristic range of invertebrate species, and brook water crowfoot have adapted to live in these conditions. The South Winterbourne is an example of this, as are some of the tributaries of the Frome and Piddle. They are primarily threatened by physical modification and abstraction (see Sections 3.1.2 and 3.1.3). We intend to conduct an overall study into headwaters, including winterbournes in the LEAP area, to look at specialist plant and invertebrate life.

Water voles - the Frome and Piddle catchments support the most significant populations of water voles in Dorset. In particular, good populations are found where the main channel and associated carriers and ditches provide extensive unfragmented areas of good habitat. The Dorset Vole Survey (1997) found that 85 % of sites checked contained water voles on the middle and lower Frome. The non-chalk rivers do not generally support such good populations.

Otters - recent survey data suggests otters are increasing on both the Frome and Piddle, with an estimated 10 % site occupancy. This is still very low compared to pre-decline years, although increased survey effort may prove the figure to be an underestimate. Records have also been collected from the Sherford River and Tadnoll Brook catchments. Habitat on the Piddle and in Poole Harbour, where recent otter sightings have been confirmed, is generally good and there has recently been some otter holt construction and tree-planting on the Frome, Piddle and Tadnoll Brook.

White-clawed crayfish - the River Piddle is a key area for white-clawed crayfish in Dorset, which along with the Tadnoll Brook represents two of only three rivers known to support them in the county. They used to be widespread in the area but were almost certainly killed off by crayfish plague carried by the American Signal crayfish in the mid 1980s. Habitat degradation and possible future introductions of Signal crayfish are now threatening the existing populations.

Depressed river mussel - found in fairly clean, hard water in lowland rivers and canals. The specific ecology and therefore conservation requirements are unclear but may involve an inability to withstand drought, sensitivity to fine sediment and low numbers of fish that act as hosts for its larva.

This species is probably under-recorded in the area due to problems with identification, however there are some historic records on the Corfe River.

Fine-lined pea mussel - found in clean, hard water in lowland rivers and canals, and occasionally ponds. It has always been considered a rare species and although there are no historical records in this area it is likely to have been under-recorded. Ecological threats have been little studied and are poorly understood.

Southern damselfly - this damselfly tends to be found where chalk springs flow over acid heathland. They are typically found on the Dorset Heaths which includes several stronghold populations, but they are threatened by changes in water quality and lack of bankside management. There is concern that recently some important populations have suffered decline.

Key habitats and species in the LEAP area for which the Agency has assigned actions

(1) - Priority habitats and species

(2) - Habitats and species of conservation concern

Key Habitat

[Reason for inclusion]

Supporting BAP species

Potential threats

Chalk rivers

[UK BAP priority habitat, Habitats Directive]

Water Vole (1)

Otter (1)

Southern damselfly (1)

White-clawed crayfish (1)

Desmoulins snail (1)

Depressed river mussel (1)

Fine-lined pea mussel (1)

Salmon (2)

Lamprey (Brook, River and Sea) (2)

Shad (Allis and Twaite) (1)

Bullhead (2)

Medicinal leech (1)

Abstraction

Physical modification

Pollution

Land use change

Inappropriate vegetation management

Invasive species

Rivers and streams

[South West BAP]

Lamprey (Brook, River and Sea) (2)

Salmon (2)

Shad (Allis & Twaite) (1)

Round mouthed snail (2)

Otter (1)

Water vole (1)

Pipistrelle Bat (1)

Barbastelle Bat (2)

Reed Bunting (2)

Pollution

Abstraction

Land drainage

Development pressure

Inappropriate bank management

Invasive species

Coastal and floodplain grazing marsh

[UK BAP priority habitat, South West BAP, Dorset County BAP]

Cut grass (2)

Black bog ant (bog habitat) (1)

Greater water parsnip (2)

Desmoulins snail (1)

Mole cricket (1)

Lowered water levels

Reduction in the extent and period of winter flooding

Changes in agricultural practices creating grassland swards unattractive to feeding wildfowl and wading birds

Decrease in management of hedgerow and riverside trees, and scrub invasion along ditches reducing the openness of grazing marsh

Damage to wader nest sites through trampling by stock

Loss of bird feeding micro-habitats and ditch infrastructure

Reedbed

[UK BAP priority habitat, South West BAP]

Bittern (1)

Otter (1)

Water vole (1)

Reed Bunting (2)

Poor water quality

Inappropriate water level management

Lack of management leading to succession to a drier woody habitat

Fen

[UK BAP priority habitat, South West BAP, Dorset County BAP]

Water vole

Otter

Southern damselfly (1)

Desmoulins snail (1)

Abstraction and operations leading to drying out

Pollution

Habitat modification (scrub encroachment, inappropriate management)

Inappropriate water level management

Key Habitat [Reason for inclusion] Supporting BAP species	Potential threats
Estuaries [UK BAP priority habitat, South West BAP] <i>Otters (1)</i> <i>Tentacled lagoon worm (2)</i> <i>Shad (Allis and Twaite) (1)</i> <i>Salmon (2)</i> <i>Eelgrass (1)</i> <i>Maerl (2)</i> <i>Starlet sea anemone (1)</i>	Dredging, sea defences Pollution Recreational pressure Development pressure Sea level rise Exploitation of shell fisheries
Standing open water [South West BAP] <i>Great crested newt (1)</i> <i>Medicinal leech (1)</i> <i>Southern damselfly (1)</i> <i>Pillwort (2)</i>	Abstraction and/or land drainage and/or infilling Pollution and/or nutrient enrichment Inappropriate management and/or neglect Recreational pressures Inappropriate stocking Invasive species
Urban watercourses [South West BAP, Dorset County BAP] <i>Pipistrelle bat (1)</i> <i>Great crested newt (1)</i> <i>Bullhead (2)</i> <i>Water vole (1)</i>	Inappropriate management Development pressures Pollution Over engineering and/or culverting and/or flood defence works Recreational pressures
Saline lagoons ^A [UK BAP priority habitat, South West BAP]	Pollution, especially nutrient enrichment Natural succession and sediment movement Artificial water control Development, infilling and coastal defence
Sand dunes ^A [UK Marine BAP, South West BAP]	Coastal defence work Sand and gravel extraction Inappropriate dune management Changing sea levels Erosion Invasive species
Rocky sea bed [UK Marine BAP, South West BAP]	Fishing gear damage Dredging and dumping of material Recreational pressures Pollution Climate change
Sea cliff and slope ^A [UK Phase II, South West BAP, UK Marine BAP Draft] <i>Rock sea lavender (2)</i>	Sea defences Changes in land management Recreational pressures Invasive species
Seagrass beds [UK BAP, South West BAP, Dorset BAP]	Anchoring and mooring issues Coastal development Shellfish collection and bait digging Dredging and dumping of materials Pollution Invasive species
Lowland heathland [UK BAP, South West BAP, Purbeck BAP] <i>Southern damselfly (1)</i> <i>Black bog ant (1)</i>	Neglect and scrub encroachment Inappropriate management Development pressures Recreational pressure Heathland fires

^A - actions under these key habitats are incorporated into our routine work programme or existing frameworks, for example water quality improvements and Shoreline Management Plans (see Sections 3.9.2 and 4.6). Any future specific actions will be incorporated into the LEAP

There are also a number of habitats - maerl beds, mudflats, littoral and sub-littoral chalk and coastal saltmarsh - relevant to this area listed in the draft UK Marine Biodiversity Action Plan. When actions have been finalised they will be incorporated into the LEAP.

There are numerous other habitats and species for which the Agency has no assigned actions, but which are found in the area. These are listed in the following documents:

- English Nature South Wessex Downs Natural Area Profile
- English Nature Dorset Heaths Natural Area Profile
- English Nature Isle of Portland and Purbeck Natural Area Profile
- English Nature South Dorset Coast Marine Natural Area Profile
- English Nature Solent and Poole Bay Marine Natural Area Profile
- Purbeck Biodiversity Action Plan
- Dorset Biodiversity Action Plan Audit

At a local level, we are also involved in work to produce a Biodiversity Action Plan for Dorset. Partners include the Dorset Wildlife Trust, English Nature, the Farming and Wildlife Advisory Group, the Royal Society for the Protection of Birds, Wessex Water and local planning authorities. This will provide a focus for biodiversity action in the plan area and will set local targets and priorities for everyone involved in the delivery of biodiversity. The priorities include: fens, coastal and floodplain grazing marsh, reedbed, urban watercourses and seagrass beds, and pink sea fan and the great crested newt.

Many of these habitats and species actions will be progressed through individual steering groups. We are chairing the steering group for coastal and floodplain grazing marsh and will attend others where appropriate. We will carry out the actions assigned to us that arise from these groups over the forthcoming years.

In 1997 the Purbeck Biodiversity Action Plan was produced by a wide range of organisations. The actions contained within it are being progressed by the relevant authorities, including the Agency, in order to protect and enhance the special biodiversity of the Purbeck area.

Chalk rivers and associated species

Actions	By	99	00	01	02	03
3.1 Develop a vision for the sustainable use of the Frome and Piddle floodplain 	Agency Partners	●	●	●	●	●
3.2 Target lower Frome and Piddle for Countryside Stewardship Scheme (or other agri-environment schemes, see Section 4.9); aim for 10 % bank length entered 	Agency MAFF Partners	●	●			
3.3 Target chalk rivers and their winterbourne stretches for river habitat surveys 	Agency		●	●		
3.4 Conduct a study looking at headwaters in the LEAP area to highlight important invertebrate and plant communities and their need for protection 	Agency		●	●	●	

Actions	By	99	00	01	02	03
3.5 Target Wareham Royalty site (see Section 3.6.10) for an initial appraisal of aquatic invertebrate fauna  	Agency		●			
3.6 Implement actions from the South Wessex Crayfish Species Action Plan; specifically including actions 3.7 - 3.9 	Agency	●	●	●	●	●
3.7 Survey ponds in the Piddle catchment for crayfish to promote designation as a no-go area 	Agency Partners	●	●			
3.8 Develop habitat enhancement work on the River Piddle 	Agency DWT Partners		●	●		
3.9 Establishing long-term monitoring of existing crayfish populations 	Agency	●	●			
3.10 Support Dorset Rivers and Wetlands Project to implement actions from national and regional BAPs for otters including management of the Dorset Otter Group and on-going survey work to restore breeding otters to all catchments recorded since 1960 by 2010 	Agency Partners	●	●	●	●	●
3.11 Through the Dorset Rivers and Wetland Project, set up a road survey to identify blackspots for otter road casualties; targeting the Frome and Piddle 	Agency Partners			●	●	
3.12 Ensure otter guards are present on all fyke nets 	Agency	●	●	●	●	●
3.13 Establish areas on the lower Piddle for otter habitat enhancement and continue enhancement work elsewhere  	Agency	●	●	●		
3.14 Carry out bioassays and post mortems on dead otters; please contact our Blandford Office should a dead otter be found 	Agency	●	●	●	●	●
3.15 Continue to implement UK and South West BAP for water voles to maintain core areas on the Frome and re-establish 1970s range by 2010, partly through support to the Dorset Rivers and Wetland project 	Agency Partners	●	●	●	●	●
3.16 Target areas for water vole habitat enhancement work and set up demonstration sites for best management practices  	Agency Partners	●	●			

Actions	By	99	00	01	02	03
3.17 Survey for depressed river mussel, fine-lined pea mussel and desmoulins whorl snail; targeting Frome & Piddle catchments 	Agency Partners	●	●	●		

Coastal and floodplain grazing marsh and associated species

Actions	By	99	00	01	02	03
3.18 See actions 6.35 - 6.37						
3.19 Support Dorset Wetland Group to promote this habitat and target areas for action including setting up a demonstration site  	Agency Partners	●	●			
3.20 Ensure that key populations of the black bog ant, once identified, are taken account of in our work and that their needs are incorporated into water level management plans (see Section 3.6.6) 	Agency EN	●	●	●	●	●

Reedbed and associated species

Actions	By	99	00	01	02	03
3.21 Develop a plan for the management of reedbed and scrub on the Wareham Royalty site owned by the Agency (see Section 3.6.10)  	Agency DRWG	●	●			
3.22 Contribute towards Wareham Meadows reedbed creation  	Agency RSPB	●	●	●		

Fens and associated species

Actions	By	99	00	01	02	03
3.23 Contribute towards fen management, including tree removal on sites identified as priorities 	Agency EN RSPB LAs DWT Others	●	●			
3.24 Develop study to look at the impacts of silt and habitat change on the Southern Damselfly at Povington 	EN MoD DWT NT RSPB Agency		●	●	●	
3.25 Help fund habitat management/scrub removal on Southern Damselfly sites 	Agency		●	●	●	

Rivers and streams and associated species

Actions

3.26 Recreate 5 hectares of floodplain woodland by 2005


3.27 Develop a strategy to assess the distribution of invasive plants and possible options for their control
 

By	99	00	01	02	03
Agency Partners	●	●	●	●	●
Agency		●	●		

Urban watercourses and associated species

Actions

3.28 Provide advice to individual projects, raised by the urban watercourses group, to enhance urban watercourses and adjacent bank management and bid for funds where requested
 

By	99	00	01	02	03
Agency	●	●	●		

Standing open water and associated species

Actions

3.29 Implement UK and Purbeck BAP for great crested newts


3.30 Support Dorset Biodiversity project to survey ponds for great crested newts


3.31 Contribute towards pond enhancement work where key areas are identified
 

By	99	00	01	02	03
Agency Partners	●	●	●	●	●
Agency Partners		●	●		
Agency		●	●		

Marine habitats and associated species

Actions

3.32 Survey for maerl beds, seagrass beds and starlet sea anemone


3.33 Support Dorset Seasearch project to survey rocky seabed to identify important species and key areas


3.34 Bid for funds to support seabed visualisation (habitat mapping) project


By	99	00	01	02	03
Agency Partners	●	●	●		
Agency Partners	●	●	●		
Agency	●	●			

Estuaries and associated species

Actions

3.35 Develop a biological monitoring strategy for Poole Harbour and coastal areas
 

By	99	00	01	02	03
Agency			●	●	●

Concern has also been expressed regarding erosion and accretion processes within Poole Harbour and the impact on the ecology of salt marshes and mudflats. Some work has already been undertaken by Reading University, Bournemouth University and the Institute of Terrestrial Ecology. We may become involved in a study group set up to investigate these issues.

3.3.1 EC Habitats Directive and EC Birds Directive - In addition to our work on the UK BAP, we will play our full part in contributing towards the appropriate management of protected sites in the area. These include Sites of Special Scientific Interest, Sites of Nature Conservation Interest (designated by the Dorset Wildlife Trust), Ramsar sites, Special Areas of Conservation (SAC) nominated under the EC Habitats Directive, and Special Protection Areas (SPA) classified under the EC Birds Directive.

The EC Habitats and Species Directive and the EC Birds Directive place additional responsibilities on us along with our normal conservation duties. The aim of the legislation is to protect and conserve certain threatened species and habitats throughout Europe. This is to be achieved by the establishment of a network of nature conservation sites which will be known as the Natura 2000 Network. It is intended that designation under the Directive will both maintain and restore habitats and species of European interest including the maintenance of a habitat's or species' geographical range and extent. There are six sites within the plan area (wholly or partly) which will eventually become part of the Natura 2000 network (further information is given in Appendix 5.2):

- Dorset Heaths (Purbeck and Wareham) and Studland Dunes (candidate SAC)
- Dorset Heaths (candidate SAC)
- Isle of Portland to Studland Cliffs (candidate SAC)
- St Aldhelms Head to Durlston Head (candidate SAC)
- Poole Harbour (SPA, Ramsar site)
- Dorset Heathlands (SPA, Ramsar site)

It has been decided by the UK Government that as soon as a site has been submitted to Brussels for confirmation (i.e. it has become a candidate SAC), the regulations will apply. This means that the conservation regulations already apply to the sites listed above.

With regard to these sites, the Agency is a competent authority, and has extra responsibilities to safeguard them. Any proposals or applications for new authorisations, for example, consents to discharge (see Section 3.6), water abstraction licences (see Section 3.1) or waste management licences (see Section 3.5), which may, either alone or in combination with others, have a significant effect on the conservation interests of a Natura 2000 site, will be subject to a full appropriate assessment of the impact on the interests of the site. The application can only be granted where the Agency has ascertained that it will not adversely affect the integrity of the European site. These authorisations can be either inside or outside the site, as those outside the boundary may have the potential to impact the qualifying interests.

We are also obliged to review all existing authorisations and activities (flood defence work, see Section 3.6) which may be affecting these sites, taking advice from English Nature fully into account. We are required to complete Stage II of the review procedure, determining which authorisations are likely to be having an adverse affect on urgent priority SPAs by September 1999. This includes the Dorset Heathlands SPA. Stage III, undertaking appropriate assessments, is due to start on urgent priority SPAs in October 1999 (see Appendix 5.2). Bids have been and are currently being made to resource this process.

Actions
3.36 Bid for resources to use Stage II methodology to determine authorisations requiring review  
3.37 Undertake Stage II work when resources are made available  
3.38 After completion of Stage II, undertake review of identified authorisations (Stage III)  
3.39 Establish management and standards for the aquatic environment which are appropriate for maintaining habitats and species at favourable conservation status in designated areas  

By	99	00	01	02	03
Agency	●				
Agency	●	●	●	●	●
Agency	●	●	●	●	●
Agency Others	●	●	●	●	●

3.3.2 River Frome Site of Special Scientific Interest Consenting Protocol and Conservation Strategy - We have been working with English Nature to produce the Frome Site of Special Scientific Interest Protocol, a mechanism to assist in streamlining the consenting procedure for owners and occupiers. It is a working agreement between English Nature and ourselves and aims to reduce bureaucracy relating to activities requiring authorisation on the river. The consenting protocol is now complete and has been adopted as the national model.

Additionally, as part of the Memorandum of Understanding with English Nature, we must produce a conservation strategy for each river Site of Special Scientific Interest. The strategy is an overarching document highlighting those issues that potentially impact on the conservation interest, and proposing measures to research, monitor and act to reduce impacts. The conservation strategy is due to be completed by 2000.

Actions
3.40 Produce conservation strategy for the River Frome Site of Special Scientific Interest  
3.41 Produce a leaflet to summarise the conservation strategy and consenting protocol  

By	99	00	01	02	03
Agency EN	●	●	●		
Agency EN	●	●	●		

3.4 Conserving the land

Local planning authorities and the Agency have responsibilities for minimising the impact of development on the environment. We maintain a continuous dialogue with officers of the planning authorities so that issues of common interest can be pursued and potential conflict avoided in ways that make effective use of resources. As much of this work forms part of our day-to-day work it is dealt with in Section 4.2, *Working with local planning authorities*.

3.4.1 Contaminated land - The Agency will contribute to the development planning process (see Section 4.2) to ensure the effective improvement of contaminated sites proposed for development through our role as a statutory consultee.

Most contaminated sites are improved during redevelopment, with the cost of the work paid for by the development and the details of the clean-up controlled through planning permission. This is the best means of achieving re-use and will continue wherever possible. Larger or more heavily contaminated sites require preliminary work before developers take over, and this may be undertaken by national owners or Government-sponsored bodies such as Development Agencies or

English Partnerships.

We will continue to provide pollution prevention guidance on sites known to be contaminated and possibly requiring remediation.

The Environment Act 1995 contains new provisions for dealing with contaminated land which should be enacted in December 1999. Local authorities are the key regulators under the Act and will carry out surveys to identify contaminated land. The local authorities will then, in collaboration with the polluters and/or landowners, ensure that works are carried out to remove the identified risks.

Under the regulations some sites will be designated as special sites for which we will take responsibility. A site must be identified as contaminated before it can be designated a special site. The Special Site Regulations categorise land under a number of headings, nine in total, by the type of process and/or activity which might lead to special site status, for example, former Ministry of Defence land and nuclear establishments.

Actions	By	99	00	01	02	03
4.1 Assist local authorities to implement their responsibilities under the new regime for the improvement of contaminated land. <i>The resources required will depend on the number of sites identified</i> 	LAs Agency	●	●	●	●	●
4.2 In consultation with local authorities manage contaminated land sites identified as special under the new regime. <i>The resources required will depend on the number of sites identified</i> 	Agency LAs	●	●	●	●	●

3.5 Managing waste

Wastes are produced as a result of industrial and domestic activities. The Agency regulates the treatment, recovery, storage, movement and disposal of controlled wastes, which includes household, commercial and industrial wastes. This excludes waste from agriculture, mining and quarrying operations. Waste management activities must be undertaken so as not to give rise to pollution of the environment, harm to human health or serious detriment to the local amenity. We issue waste management licences to ensure appropriate control of these activities.

With regard to Special Areas for Conservation and Special Protection Areas any proposals or applications for new authorisations, including waste management licences, which may have an effect on the conservation interests of these sites will be subject to an assessment process. We are also obliged to review existing waste management licences which may be affecting these sites (see Section 3.3.1).

There are a number of active licensed waste sites in the plan area including landfill sites, waste transfer stations and civic amenity sites. Although waste statistics are not readily available it is estimated that 494,000 tonnes of waste were sent to landfill sites in the area during 1998/99. Not all of this will have been produced within the LEAP area.

Local authorities also have a number of responsibilities. It is the duty of each waste collection authority (District or Borough Council or Unitary Authority) to arrange for the collection of household waste in its area. The waste disposal authority (County Council or Unitary Authority) arranges for the disposal of household waste in its area. Waste disposal authorities also provide civic amenity sites where the public can deposit household waste free of charge.

The County Council or Unitary Authority is also the waste planning authority and is responsible for producing waste local plans. These plans deal with the development planning considerations associated with waste management facilities and set out land use policies relevant to waste. The Agency assist waste planning authorities by providing information and advice on waste and waste management.

3.5.1 Developing strategies for sustainable waste management - The Government is currently working on a new statutory waste strategy for England and Wales. When complete, it will replace the current waste strategy set out in the White Paper, *Making Waste Work*, published in December 1995. In June 1999, the Government published a draft waste strategy for England and Wales, *A Way with Waste*. This builds on the previous consultation paper, *Less Waste More Value*,

published in 1998 which, amongst other things, recognised the lack of reliable statistics on waste. The recent draft strategy included preliminary statistics on commercial and industrial waste arisings collated from the National Waste Production survey conducted by the Agency between October 1998 and March 1999.

The main objectives of the strategy are to reduce the amount of waste society produces, make the best use of the waste produced, and adopt practices which minimise the risks of immediate and future harm to the environment and human health.

Waste management options can be ranked in a hierarchy according to their potential risk to the environment. Sustainable development generally requires that waste management practice moves from disposal, the bottom of the hierarchy, through re-use and recovery, to reduction at the top.

The information from the National Waste Production survey will be supplied to waste planning authorities and will be available by the end of 1999. The Agency will also produce strategic waste management assessments for each planning region in England and Wales, which will detail information on waste arisings, projections and facilities.

The Agency are assisting local authorities in Dorset with their work to formulate a joint strategy for the future treatment and disposal of all waste in Dorset. The strategy will provide a framework for waste recycling plans, an input to the preparation of contracts for both waste collection and disposal, and an input to the review of waste policies and proposals in the development plan.

A draft strategy for consultation, outlining a range of preferred options for dealing with Dorset's waste, is to be produced in 1999. The result of this will help to inform and refine the direction of the strategy.

Actions	By	99	00	01	02	03
5.1 Supply information from National Waste Survey to waste planning authorities 	Agency	●	●			
5.2 Contribute to integrated waste strategy for Dorset 	Agency	●	●			

In addition waste planning authorities need to make decisions about the type of waste management facilities required. We are developing a decision-making aid that uses Life Cycle Assessment techniques; this is a technique where the inputs and outputs of a particular process or practice are systematically identified and quantified from the extraction of raw materials to the assimilation back into the environment of the emissions and residues produced. The Best Practicable Environmental Option for a particular waste in one area will not necessarily be the same in another.

We intend to release a software tool which will help inform planners and policy makers in local government, as well as the waste management industry, of the environmental burdens of options available to them for managing household waste. Economic considerations will be incorporated in later versions.

Actions	By	99	00	01	02	03
5.3 Assist waste planning authorities in determining the best practicable environmental option for waste management options 	Agency	●	●	●	●	●

3.5.2 Minimising waste - Waste minimisation is the reduction of waste at source. The Government in its strategy recognises that the best way to reduce the impact of waste on the environment can be simply to avoid producing it. Minimising waste realises multiple benefits to both industry and the environment. Scarce resources are conserved, the costs and impacts of waste disposal are reduced and more efficient, cleaner processes are encouraged. In short, waste minimisation is at the heart of sustainable waste management.

The South Wessex Waste Minimisation Group was set up in December 1996 in order to develop and promote the use of best practical techniques for the profitable and economic minimisation of all waste arising from South Wessex businesses. The group is a partnership involving some 150 local businesses as well as local authorities, Local Agenda 21 groups and

Business Link. The group actively seeks new members and is open to any organisation that will gain benefit and add value to the group.

A project is currently being run which places students from Bournemouth University in local industry, to conduct a waste minimisation or other environmental study as part of their degree course. It is hoped this will continue over the next few years, increasing the number of placements.

The waste exchange scheme has shown particular promise at achieving sustainable management of waste and would benefit from increased participation by businesses in the plan area. The principle of the scheme is that one person's waste can be another person's raw material which encourages environmental responsibility by enabling participants to reduce the quantities of waste disposed of. The waste minimisation group may also look at targeting specific industry types in the future.

Up until now most waste minimisation initiatives have taken place within industry and commerce; the new Government strategy will consider whether and how to expand and develop such measures. It is hoped that partnerships can be developed further with local authorities to promote the concept of household waste minimisation. The Local Authority Recycling Advisory Committee have recently launched the *Buy Recycled Campaign* which is aimed at recycling waste and purchasing products which contain a recycled content of post-consumer waste.

The South Wessex Area is also actively involved with the Dorset Recycling Group. The group brings together Dorset County Council, District and Borough Councils, and the new Unitary Authorities of Poole and Bournemouth as well as the Agency, to promote the reduction and recycling of household waste.

The South Wessex Area have also produced the *Industrial and Commercial Waste Minimisation and Recycling Directory*. The directory is one of a series of four covering the South West Region and includes advice to firms who wish to become more environmentally friendly along with contacts for the re-use and recovery of wastes, and waste minimisation and recycling information. Copies are available from the Agency's Blandford Office. A new South West Region version is likely to be produced in 2000.

Actions	By	99	00	01	02	03
5.4 Promote and support the South Wessex Waste Minimisation Group 	Agency	●	●	●	●	●
5.5 Provide advice to commerce and industry on waste minimisation 	Agency	●	●	●	●	●
5.6 Assist with production of South West Region waste minimisation and recycling directory 	Agency	●	●	●		

3.5.3 Recycling - Recycling is a process which takes materials from the waste stream and produces usable new materials or products from it. A variety of legislative and fiscal measures including EC Directives and the Landfill tax are designed to promote recycling.

The *Producer Responsibility Obligations (Packaging Waste) Regulations* are designed to implement the recovery and recycling targets in the EC Directive on Packaging and Packaging Waste. The regulations require businesses to recover and recycle a specified tonnage of packaging waste based on the amount of packaging they handle. We have been charged with implementing, monitoring and enforcing this legislation and will provide advice on the implementation of the regulations.

Businesses who handle more than 50 tonnes of packaging and packaging materials and who have an annual turnover of more than £5 million have to register with the Agency's Producer Responsibility Registration Unit. They must start to meet interim recovery and recycling targets in 1998 -99, meet an interim recycling target by 2000 and meet full targets by 2001. From January 1999 certificates of compliance have had to be submitted and compliance visits to businesses will begin after submission of the first certificate. Each individually registered company and those registered schemes will be visited once every three years. The turnover threshold drops to £1 million in 2000. However, the tonnage and annual turnover thresholds are currently the subject of a Government consultation and one of the options includes changing the

turnover threshold to £2 million. If this were to be implemented it would be likely to double the number of companies affected.

We are also responsible for the accreditation of reprocessors; it is felt that it will assist businesses if they are able to show that their obligations have been discharged, by obtaining evidence to support their certificate of compliance from Agency-accredited UK reprocessors. There are currently two accredited reprocessors in the South Wessex area; one in Poole and one in Bournemouth.

Actions	By	99	00	01	02	03
5.7 Monitor compliance and company registrations with the Producer Responsibility Regulations 	Agency	●	●	●	●	●
5.8 Continue accreditation of reprocessors. Accredited reprocessors to be re-accredited every year. Accreditation to continue as and when a reprocessor applies to us 	Agency	●	●	●	●	●
5.9 Raise business awareness of the regulations through telephone calls, visits and seminars 	Agency	●	●	●	●	●

3.5.4 Reducing the fly-tipping of waste - Illegal tipping of waste or fly-tipping is a problem that affects the rural as well as the urban environment. It makes the environment unattractive and in some cases can cause land and water pollution and hazards to people.

There is currently a proposal to investigate fly-tipping in the West Dorset, Poole and Purbeck area; this will include sites within the LEAP area. It is planned to use aerial surveys and partnerships with District, Town and Parish councils in order to identify and reduce the incidence of fly-tipping within the area.

Actions	By	99	00	01	02	03
5.10 Investigate fly-tipping within the West Dorset, Poole and Purbeck area   	Agency Partners	●	●			

3.6 Delivering integrated river-basin management

Integrated river-basin management is a way of looking at the river and its surrounding land as a whole. It not only looks at the quality of water in the river but also at its physical environment, including landscape, recreational use and flood control works.

Indeed with regard to Special Areas for Conservation and Special Protection Areas any proposals or applications for new authorisations, including consents to discharge, which may have an effect on the conservation interests of these sites, will be subject to an assessment process. We are also obliged to review existing consents and activities (flood defence work) which may be affecting these sites (see Section 3.3.1).

3.6.1 Impact of sewage and sewerage on water quality - The EC Bathing Waters Directive (*concerning the quality of bathing water*) seeks to protect public health and the amenity value of popular bathing waters by reducing pollution. There are 12 designated bathing waters in the LEAP area; all have complied with the compulsory mandatory standards of the Directive since 1995. Poole Sandbanks Car Park bathing water was newly designated for the 1997 bathing season and complied with the standards of the Directive in 1997 and 1998.

The bathing water at Kimmeridge has complied with the Directive in recent years, however it failed the mandatory standards of the Directive in 1993 and 1994. Following these failures, in 1997 the Smedmore Estate installed a new treatment plant for effluent from Gaulter Cottages. Wessex Water, in response to an application for first time sewerage, is planning a scheme to serve the village of Kimmeridge. This will further reduce the risk of bathing water non-compliance.

The bathing water at Swanage Central has complied with the Bathing Waters Directive in recent years, however it failed the mandatory standards of the Directive in 1993. This failure was attributed to combined sewage overflows discharging in the vicinity of the bathing water. Improvements have now been made by Wessex Water, with the elimination of 16 unsatisfactory overflows under the asset management plan 2 (AMP2) programme (see Section 4.7).

We expect the discharge at Lulworth outfall to be improved under AMP3 (see Section 4.7) to include secondary treatment in order to achieve guideline compliance with the Bathing Waters Directive at Lulworth Cove. Guideline standards are more stringent than the mandatory standards of the Directive and we aim to achieve them subject to consideration of the costs and benefits. We also expect disinfection to be installed at Poole, Wareham and Lytchett Minster sewage treatment works under AMP3 to maintain guideline bathing waters compliance.

+ Improve Shellfish Water Quality in P. Harbour

Actions	By	99	00	01	02	03
6.1 Monitor progress with the delivery of expected AMP3 improvement schemes under the EC Bathing Waters Directive 	WWSL Agency	●	●	●	●	●
6.2 Monitor the environmental impact of expected AMP3 improvement schemes and other improvements on designated EC Bathing Waters  	Agency WWSL Smedmore Estate	●	●	●	●	●

The EC Urban Waste Water Treatment Directive (*concerning urban waste water treatment*) specifies minimum standards for sewage treatment and collection systems. The Directive also requires higher standards of treatment for discharges to sensitive areas. Sensitive areas are those waters that receive discharges for which the population exceeds 10,000 population equivalents and are, or may become, eutrophic in the future. They are designated by the Secretary of State.

The discharge of macerated sewage at Swanage will cease in December 2000 in order to meet the requirements of the Urban Waste Water Treatment Directive. Sewage will be treated at Swanage by microfiltration; this process is equivalent to secondary treatment with disinfection. These improvements should also ensure bathing water compliance.

We expect improvements to Sydling St. Nicholas sewage treatment works to be carried out in AMP3 (see Section 4.7) in order to meet the requirements of the Urban Waste Water Treatment Directive. The improvements are to increase the volume of sewage receiving full treatment at the works and to upgrade the storm tanks.

A stretch of the Dorset Frome from Dorchester sewage treatment works, *the qualifying discharge*, to the tidal limit at Wareham was assessed as a candidate Sensitive Area (Eutrophic), under the Directive. This assessment was based on monitoring carried out during the period from 1994 to 1996. The whole of Poole Harbour was also assessed as a candidate Sensitive Area (Eutrophic), with the qualifying discharges being Poole and Wareham sewage treatment works.

Neither proposal was ratified by our National Panel and hence neither was forwarded to the Department of the Environment, Transport and the Regions for approval. Further nutrient data will be collected up until the end of 2000 at both sites, with a view to resubmission for the 2001 review of candidate Sensitive Areas (Eutrophic). If these two areas are designated, nutrient reduction may be required at Poole, Wareham and Dorchester.

However, we expect improvements to be carried out at Dorchester sewage treatment works in AMP3 (see Section 4.7). There are two elements to these improvements:

- a tightening of the consent condition for ammonia in order to maintain the current discharge load and ensure that downstream ammonia levels are not raised due to the works. To protect this stretch of river from potential downgrading by new discharges, we are proposing to upgrade the River Quality Objective of the river stretch of the Dorset Frome which receives the discharge from the works (Dorchester sewage treatment works to the confluence with the South Winterbourne) from RE2 to RE1 (see Appendix 5.3 and Map 4). We would welcome your comments on this proposed upgrade
- phosphate reduction; following concerns about the rising phosphate levels in the final effluent and potential impact on downstream water quality we are expecting improvements to reduce phosphate levels in the discharge

Wool sewage treatment works may be responsible for significant non-compliance with the River Quality Objective of RE1 in 1998 due to biochemical oxygen demand and dissolved oxygen on the Dorset Frome from East Burton to downstream of

the Water Barn bifurcation (see Appendix 5.3 and Map 4). An investigation has been planned to confirm this.

Actions	By	99	00	01	02	03
6.3 Monitor progress with the delivery of expected AMP3 improvement schemes under the EC Urban Waste Water Treatment Directive 	WWSL Agency	●	●	●	●	●
6.4 Monitor the environmental impact of expected AMP3 improvement schemes under the EC Urban Waste Water Treatment Directive  	Agency WWSL	●	●	●	●	●
6.5 Continue monitoring the Frome and Poole Harbour in support of the Sensitive Area (Eutrophic) designation  	Agency	●				
6.6 Investigate appropriate upgrading of the River Quality Objective on the Frome from Dorchester sewage treatment works to confluence with the South Winterbourne  	Agency Users	●	●			
6.7 Investigate significant River Quality Objective non-compliance on the Frome from East Burton to downstream of the Water Barn bifurcation  	Agency	●				

A number of sewerage systems within the area can become infiltrated with groundwater during the winter months when the water table is high. This results in intermittent discharges of dilute raw sewage from pressure points within the system. The Piddle Valley sewerage system is affected and there are intermittent discharges from manholes on the system in Piddletrenthide and Muston. Similar problems occur at Milborne St Andrew and Sydling St Nicholas. Wessex Water has been undertaking a sewer sealing programme this summer which included Puddletown and Sydling St Nicholas.

Sources of funding to reduce infiltration are still being investigated, but as yet there is no agreed way forward. A joint public awareness campaign involving Wessex Water, West Dorset District Council and the Agency has been suggested.

Similar problems have also been experienced in the Martinstown area. During 1998 Wessex Water undertook a degree of sewer sealing with limited success, it is felt that private pipes are contributing to the problem. An awareness campaign similar to that suggested for the Piddle Valley has been proposed. Further sewer sealing work at known ingress points may also be undertaken.

It has also been suggested that improvements need to be made to the sewerage system in Poole. This has been prompted by past flooding problems relating to the rising main from the Elgin Road pumping station.

AMP3 (see Section 4.7) will also see improvements to the sewerage infrastructure in the LEAP area with the upgrading of intermittent discharges, including combined sewer overflows, emergency overflows at pumping stations and storm overflows at sewage treatment works. We are currently identifying and prioritising, with Wessex Water, these intermittent discharges to ensure that environmental benefits are maximised.

Owners, occupiers and local authorities can apply to the sewerage undertaker, under Section 101a of the Water Industry Act 1991, to provide connection to the foul sewer. This is known as first time sewerage. Our role is to provide supporting information to the applicant and sewerage undertaker on the environmental impact of any existing facilities and to act as an arbitrator in any dispute. We expect first time sewerage to be provided at Kimmeridge in AMP3 in order to maintain compliance with the EC Bathing Waters Directive. Schemes are also expected to be provided at Bovington-Lytchett Lane, Furzebrook Road, Harman's Cross Phase 2 and Godmanstone.

Actions

6.8 Support the production of a leaflet for Piddle Valley residents to raise awareness of the issue of sewer infiltration



6.9 Monitor progress with the delivery of expected AMP3 intermittent discharge improvement schemes



6.10 Monitor the environmental impact of the expected AMP3 intermittent discharge improvement schemes



6.11 Monitor progress with the delivery of expected AMP3 first time sewerage schemes



By	99	00	01	02	03
WWSL WDDC Agency	●	●			
WWSL Agency	●	●	●	●	●
Agency WWSL	●	●	●	●	●
WWSL Agency	●	●	●	●	●

3.6.2 Shellfisheries - The EC Shellfish Waters Directive (*on the quality required of shellfish waters*) protects shellfish populations from harm caused by pollution. We are responsible for monitoring the quality of designated waters and reporting the results. Where appropriate standards are not met, we are responsible for identifying sources of pollution and ensuring that improvements are made.

Historically only Poole Harbour was designated under the Directive with monitoring points located in Wareham Channel, Salterns Main Channel, South Deep and the Harbour Entrance. During July 1999 the Government announced a revision to the designated shellfish waters in Poole Harbour. The harbour will now be divided into three separate designated waters: Poole Harbour North, South and West. In addition, the area of designation has been extended to include Poole Bay, with a new monitoring point south of Bournemouth Pier.

The Wareham Channel site failed to comply with the Directive in 1994 due to a single sample exceeding the water quality standard for dissolved copper. Subsequent investigations have found no further problems.

The Salterns Main Channel site failed the Directive in 1996 and 1997 due to elevated levels of nickel and zinc, with copper levels also exceeding Directive standards in 1997. Investigations have shown potential diffuse sources of zinc from sacrificial anodes on boats and steel pilings in the marina. However, the unusually high levels suggest a possible intermittent point source of contamination. If further sampling proves inconclusive, risk assessment work will be carried out on possible sources of contamination from marine-based activities. The site was compliant with the standards of the Directive in 1998 although sediments did show significant contamination with zinc.

Both the Harbour Entrance and South Deep sites failed the dissolved copper standard of the Directive in 1997, the failure could not be attributed to any reported pollution event. In addition to the possible impacts of copper-based anti-fouling paints, further water sampling will be undertaken to highlight other possible diffuse or point sources of copper in the Harbour. The BP Amoco backwashing operation, undertaken during well cleaning, is consented for the discharge of copper and has been investigated as a possible source. The investigation showed that there were no elevated levels of copper in the effluent, hence it has been ruled out as a source of the problem.

We expect ultra-violet disinfection to be installed at Poole, Wareham and Lytchett Minster sewage treatment works in AMP3 (see Section 4.7). This will ensure compliance with the standards of the EC Shellfish Waters Directive in the designated shellfish waters, as well as maintaining guideline compliance with the EC Bathing Waters Directive.

The EC Shellfish Hygiene Directive (*laying down the health conditions for the production and placing on the market of live bivalve molluscs e.g. oysters and mussels*) defines standards for shellfish quality required in the end-product. It also classifies bivalve mollusc harvesting areas into four categories according to the concentration of bacteria found in the shellfish flesh. The Ministry of Agriculture, Fisheries and Food and the Department of Health share responsibility for this Directive in England and Wales. Local authority Environmental Health departments undertake monitoring of shellfish flesh. The Directive does not provide us with any direct powers to control the quality of polluting discharges; however, we will apply a policy of *no deterioration* to protect sites from new discharges.

(in we.)

There are three shellfish hygiene sites designated within the area. Poole Harbour (excepting Wareham Channel) is classified for oysters (native and Pacific), mussels, cockles and clams. This site was classified as class B in September 1998. Wareham Channel is classified for clams; this was classified class C in September 1998. Poole Bay is classified for native oysters and was classified as class B in September 1998.

Actions	By	99	00	01	02	03
6.12 Undertake risk assessment work to identify possible sources of zinc contamination at the Salterns Main Channel EC Shellfish Waters Directive site 	Agency	●	●			
6.13 Investigate possible sources of copper contamination at the Harbour Entrance and South Deep EC Shellfish Waters Directive site 	Agency	●	●			
6.14 Monitor progress with the delivery of expected AMP3 improvement schemes under the EC Shellfish Waters Directive 	WWSL Agency	●	●	●	●	●
6.15 Monitor the environmental impact of expected AMP3 improvement schemes and other improvements under the EC Shellfish Waters Directive 	Agency WWSL	●	●	●	●	●

3.6.3 Impact of land use on water quality - The agricultural community has responded well to our campaigns to reduce acute pollution incidents from specific point sources by improvements to the storage facilities provided for material such as silage and slurry. However changing agricultural land use and increases in the disposal of waste to land have led to other problems, including the increased risk of soil erosion and surface runoff from land. This run off washes pollutants such as soil particles, pesticide residues and fertilisers into watercourses from a wide area. Such pollution is termed non-point source or diffuse pollution and can contribute to water quality problems.

Although sediments occur naturally in rivers and form part of the natural cycle of erosion, elevated quantities can cause serious damage to the flora and fauna of rivers. In particular they may encourage the growth of less desirable plants in the river channel and reduce the reproductive success of some fish species by smothering the eggs. In addition the erosion of soil from agricultural land can be a route for the entry of nutrients and pesticides into the watercourse.

Historically there have been a number of known non-point source inputs of sediment to watercourses in the area, including:

- soil erosion from agricultural land
- erosion from the Ministry of Defence ranges
- silt washing from gravel workings

The Piddle Valley Soil Erosion Project (1994) identified and quantified sediment inputs into the upper Piddle, examined evidence for changes in inputs and sources in recent years, and assessed differences between the Piddle and other chalk streams. As a result a number of follow-up farm visits were undertaken and we continue to monitor the situation.

The upper Hampshire Avon *Landcare Project* aims to reduce agricultural non-point source pollution and alleviate problems such as: reduced salmon spawning success due to siltation, nutrient enrichment and occasional peaks in pesticide residue concentrations in river water. The aim of the project is to influence widespread change towards more sustainable farming practices and we are consequently trying to identify the most cost-effective methods of influencing farmers. However, this approach is new to pollution control management in the South of England. As a consequence the project is initially being piloted in the upper Hampshire Avon catchment. If successful the approach may be extended to other catchments in the South Wessex Area, if resources allow.

Further information is given in the Hampshire Avon LEAP Consultation Draft (December 1998).

Actions

6.16 Extend the Landcare project to the Frome and Piddle catchments. *This is entirely dependent on resources being made available*



By	99	00	01	02	03
Agency Partners	●	●	●	●	●

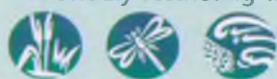
The Farming and Wildlife Advisory Group have set up a project to target the Frome Site of Special Scientific Interest and landowners in order to provide advice on nutrient budgets and soil erosion control. This project will also target the Tadnoll Brook, where siltation may be contributing to a deterioration in habitat and water quality. This project complements our own Landcare initiative and we will study progress with interest. Agri-environment schemes such as Countryside Stewardship (see Section 4.9) could help fund future changes in farm management.

The use of Wool Heath as a tank training facility was giving rise to a discharge of silty water to the Bovington Stream following heavy rainfall. The Ministry of Defence worked with the then National Rivers Authority to reduce this problem by the construction of hard standings and settlement lagoons, a wash-down recycling plant and completion of an all-weather driving circuit. In addition, further work has been done to attenuate run off from their all-weather track. A continuous monitoring project over the winter of 1995-1996 did not identify any excessive discharges from the ranges. Routine sampling of discharges at Bovington will continue to assess the effect of the tank range's maintenance programme.

The River Piddle from Manor House to Alton Pancras significantly failed to comply with its River Quality Objective of RE1 (see Appendix 5.3 and Map 4), due to biochemical oxygen demand. A subsequent review of the sampling data attributed the failure to one extreme rainfall event causing localised land run off. No further action is planned.

Actions

6.17 Work with the Ministry of Defence to ensure best practices are adopted whilst not unduly restricting the tank training programmes



By	99	00	01	02	03
Agency MoD	●	●	●	●	●

The amount of nitrate in surface and groundwaters is of concern as levels in many places are approaching the limit for drinking water quality. A major source of nitrate pollution can be from agricultural activity and the EC Nitrates Directive (concerning the protection of waters against pollution caused by nitrates from agricultural sources) requires member states to identify waters that are or could be affected in this way. If waters are clearly demonstrated to be affected, and agriculture is making a significant contribution, the land draining to these polluted waters must be designated as Nitrate Vulnerable Zones (NVZ).

Action plans must be established to reduce existing nitrate pollution and prevent further pollution. Regulations establishing the Action Programme in designated NVZs came into force in December 1998. The Agency is responsible for enforcing the regulations which place restrictions on the timing and rate of fertiliser and manure applications. Codes of Good Agricultural Practice apply outside NVZs.

Regular reviews must be carried out of existing NVZs, and to identify potential new areas. The next review will be carried out in 2001. Currently there are no NVZs in the plan area.

The whole of Poole Harbour was proposed as a candidate Polluted Water (Eutrophic) under the Nitrates Directive. The proposal was not ratified by our National Panel and hence was not forwarded to the Department of the Environment, Transport and the Regions for approval. Further nutrient data will be collected up until the end of 2000 to provide more information on the nitrogen balance and the extent and duration of macroalgal (seaweed) blooms. This is with a view to resubmission for the 2001 review of candidate Polluted Waters (Eutrophic). If the Harbour is designated at the next review, areas of land draining to it will be designated as an NVZ. We would also welcome information from the public of any undesirable disturbance to the water environment as a result of excessive plant and/or algal growth.

Actions
6.18 Contribute to the four-yearly review process of NVZs 
6.19 Continue monitoring Poole Harbour in support of the candidate Polluted Waters (Eutrophic) designation 

By	99	00	01	02	03
Agency		●	●		
Agency		●			

Oil has been recovered at Kimmeridge for over 30 years with major finds of oil and gas made in the late 1970s. The Wytch Farm complex, operated by BP Amoco and situated in the Wytch Heath forestry plantation on the southern side of Poole Harbour, has now expanded into one of the largest onshore oilfields in Western Europe.

Well sites on the south side of the Harbour and on Furzey Island provide oil and gas to the Gathering Station at Wytch. After separation, sale gas goes directly into the grid and crude oil is piped to Fawley near Southampton. Liquefied petroleum gas leaves the site by rail. The oilfield is described as mature, maximum production peaked in 1997, and the rate of production of oil and gas is now declining. World leading technology is now being used to maximise returns from the extremities of the oil-bearing strata some 12 km east from the major wellhead at Goathorn. We will continue to work with BP Amoco during the retreat from developed sites.

The statutory responsibility for response to oil spills in Poole Harbour rests with the Poole Harbour Commissioners. The commissioners have developed an oil spill response plan, *Poolspil*, after consultation with relevant authorities including the Agency. As well as having our own powers for addressing pollution and taking enforcement action against those responsible, we will assist the commissioners in responding to pollution events. The Poole Harbour Memorandum of Understanding reflects the joint responsibility of the Agency, Poole Harbour Commissioners and Dorset County Council with regard to pollution responsibilities within the Harbour.

We will continue to investigate water quality problems in Poole Harbour. This will concentrate on freshwater inputs to identify intermittent polluting discharges from industrial properties, other than those identified as a result of reported pollution incidents. This may be implemented in the form of pollution prevention campaigns, targeting particular industries or industrial estates.

A survey of the sewers serving the Dawkins Road industrial estate is currently being undertaken by Wessex Water in order to highlight problem areas. Following the survey appropriate action will be taken which may include the installation of pollution prevention devices to prevent intermittent polluting discharges entering Poole Harbour.

Poole Harbour is now included in the National Marine Monitoring Plan, which is a surveillance programme designed to monitor the biological quality of estuaries. The monitoring programme commenced this year.

Actions
6.20 Carry out a joint campaign with Wessex Water to determine the cause of intermittent pollution from the Dawkins Road industrial estate, Hamworthy 

By	99	00	01	02	03
Agency WWSL		●	●		

The implementation of the EC Groundwater Directive (*on the protection of groundwater against pollution caused by dangerous substances*) was completed by the Groundwater Regulations, and aims to protect the quality of groundwater by:

- preventing the discharge into groundwater of substances in List I
- limiting the discharge of substances in List II so as to prevent pollution

List I substances are those that are most harmful to humans or the environment, and include sheep-dip, pesticides, solvents and hydrocarbons. List II covers most other pollutants.

Anyone disposing of listed substances to land, unless covered by certain exclusions, must have written authorisation from the Agency before doing so. Conditions attached to the authorisation will minimise the environmental risks. Other activities

that do not involve disposal but may nevertheless cause a discharge of a listed substance to ground must comply with approved Codes of Practice. The Agency may, if necessary, issue a notice to further control or prohibit the activity. Such activities might include storage and handling, as opposed to disposal, of hydrocarbons, solvents and other chemicals, animal carcass burial, use of sheep-dips and other pesticides and sewerage systems.

3.6.4 Other water quality failures - The following river stretches all failed to comply with their River Quality Objectives, based on the 1998 classification, (see Appendix 5.3 and Map 4) for reasons that are unknown to us at present:

- Frome from Frampton to the confluence with the Cerne, marginally failed to comply with its River Quality Objective of RE1 due to biochemical oxygen demand
- Sydling Water from downstream of Huish Fish Farm to Shearplace Hill, marginally failed to comply with its River Quality Objective of RE1 due to biochemical oxygen demand
- River Piddle from Brockhill to Chamberlaynes Farm significantly failed to comply with its River Quality Objective of RE1 due to dissolved oxygen
- Bere Stream from Milborne St. Andrew to the confluence with the Piddle, marginally failed to comply with its River Quality Objective of RE1 due to total ammonia
- Corfe from Bucknowle House to Estuary, marginally failed to comply with its River Quality Objective of RE2 due to biochemical oxygen demand and dissolved oxygen

Upstream of the Trigon bifurcation to 8 Hatch Fish Farm on the River Piddle marginally failed to comply with its River Quality Objective of RE1 (see Appendix 5.3 and Map 4), due to low dissolved oxygen. The location of the current monitoring point has been investigated and was found unsuitable due to a lack of mixing available for the two channels of the Piddle which merge upstream. There is a more suitable site downstream but it requires modification to comply with health and safety regulations. We are currently carrying out risk assessments at all sampling sites in the South Wessex area and issues will be addressed on a priority basis as resources allow.

The River Cerne from upstream of Nether Cerne Fish Farm to Nether Cerne significantly failed to comply with its River Quality Objective of RE1 (see Appendix 5.3 and Map 4), due to biochemical oxygen demand. This is a new sampling site and the classification is based on the minimum number of samples. Further analysis will be undertaken when more data is available.

Actions	By	99	00	01	02	03
6.21 Undertake a desktop study of River Quality Objectives on the Frome downstream of Frampton to Dorchester 	Agency	●	●			
6.22 Investigate marginal River Quality Objective non-compliance on the Sydling Water from downstream of Huish Fish Farm to Shearplace Hill  	Agency	●				
6.23 Undertake a desktop study to determine the cause of the significant River Quality Objective non-compliance on the Piddle from Brockhill to Chamberlaynes Farm 	Agency	●				
6.24 Investigate marginal River Quality Objective non-compliance on the Bere Stream from Milborne St Andrew to the confluence with the Piddle  	Agency	●				
6.25 Undertake wet weather sampling to investigate the marginal River Quality Objective non-compliance on the Corfe from Bucknowle House to the estuary  	Agency	●				
6.26 Modify proposed downstream sampling site on the Piddle, for the stretch from upstream of the Trigon bifurcation to 8 Hatch Fish Farm, to comply with health and safety regulations 	Agency	●	●			

The EC Freshwater Fish Directive (*the quality of waters needing protection in order to support fish life*) ensures that water quality in designated stretches of water is suitable for supporting certain types of fish. The Directive contains two sets of quality standards, one at levels to support a coarse fish population and another set at stricter levels to support a salmonid or game fish population. The Frome downstream of Maiden Newton and the majority of the Piddle are designated as salmonid, along with the lower reaches of the South Winterbourne, Tadnoll Brook and Devil's Brook.

With a single exception, all sites complied with the Directive for the period 1993-1998. The failure was a site at Wareham and was due to low dissolved oxygen levels. This stretch supports large natural weed growth and plant respiration can reduce dissolved oxygen during the night. It is likely that dissolved oxygen levels may not have recovered through photosynthetic activity by the time of sampling. None of these lower dissolved oxygen levels were linked to any reported pollution incident. Following an improvement to the sampling protocol the site was compliant in 1998. The suitability of the sampling site is also to be reviewed as the current location is tidal.

Actions	By	99	00	01	02	03
6.27 Review current location of the EC Freshwater Fish Directive sampling site at Wareham which is tidal  	Agency	●	●	●		

3.6.5 Maintaining our rivers and flood defences - We have a responsibility to exercise a general supervision over all flood defence matters and have specific responsibilities for *main river* and sea defences in areas which are not privately owned. The length of *main river* within the plan area is 109 km on the Frome, 24 km on the River Piddle and 3.10 km on the lower Sherford. We also maintain and operate a number of flood alleviation schemes within these lengths.

We carry out maintenance work to ensure the efficient working of the natural and artificial drainage systems, and to ensure

that flood alleviation schemes provide protection up to their design standard. The Standards of Service methodology described in the Catchment Management Plan has been incorporated into the *Flood Defence Management Manual (FDMM)*. Using the FDMM methodology the Agency has set targets to justify and rank flood defence maintenance work; all works within the LEAP area are already justified.

The extent of main and tidal river floodplain has now been mapped under the Section 105 Survey. This will allow the update of Standards of Service to be made to further improve data supporting the methodology when funding allows.

We can build new defences if flooding is a serious problem in a particular area, but nowadays we usually only build new defences to protect built-up areas. All schemes must be proven to be technically, economically and environmentally sound.

Insufficient benefits have been identified to promote a capital scheme at Maiden Newton. However, the same study has identified that some flood relief could be achieved by creating a by-pass channel which would effectively move downstream the point at which the River Hooke flows into the River Frome. The possibility of achieving this by maintenance work is being investigated. If agreement can be reached works would be programmed for 2000 - 2001.

Actions	By	99	00	01	02	03
6.28 Investigate proposals for maintenance work at Maiden Newton and undertake if appropriate 	Agency	●	●	●		

A pre-feasibility study for the proposed Wareham tidal embankments concluded that there were insufficient benefits to warrant a capital scheme. The study recommended the introduction of a flood warning scheme, which is being considered as part of the Flood Warning Levels of Service Review (see Section 3.6.8).

Actions	By	99	00	01	02	03
6.29 Implement any recommendations resulting from the Flood Warning Levels of Service Review with regard to Wareham tidal embankments 	Agency	●	●	●		

Similarly, initial inspection of the proposed Swineham and Arne tidal embankments shows there to be little financial benefits for a capital scheme although there are significant conservation interests protected by the existing embankment. A strategic study is programmed for 2000 to review the situation.

Actions	By	99	00	01	02	03
6.30 Undertake strategic study at Swineham and Arne 	Agency		●			

Outline design proposals for the Poole Town Quay tidal defence scheme have been submitted to the Borough of Poole for planning consent. The Ministry of Agriculture, Fisheries and Food has also confirmed that the scheme is eligible for grant aid.

Further progression with the scheme is dependent on the Poole Harbour Commissioners boat haven for which the commissioners are still reviewing funding issues. Subject to construction of the boat haven, Agency construction works are due to start in October 1999.

Actions	By	99	00	01	02	03
6.31 Commence construction works on the Poole Town Quay tidal defence scheme 	Agency	●				

The Swanage flood alleviation scheme, funded and supervised by Purbeck District Council, is to be adopted by the Agency once the River Swan has been designated *main river*. We have recently identified and costed the changes needed to the scheme to bring it in line with the Agency's operating and monitoring systems. Discussions over the details of the adoption are currently on-going.

Current proposals are to designate the watercourse as main river to allow the Agency to adopt the scheme. An 18-month trial operation and maintenance period will be undertaken at the same time. This is planned for 2001.

Actions	By	99	00	01	02	03
6.32 Continue and resolve discussions with Purbeck District Council over adoption of Swanage flood alleviation scheme 	PDC Agency	●	●			
6.33 Following from action 6.35 operate and maintain Swanage flood alleviation scheme for an 18 month trial period 	Agency		●	●		

We also hope to conduct a geomorphological study to examine bankside erosion problems on the Frome; current erosion control practices may be inappropriate to the actual level of erosion. The study would determine erosion and deposition processes so that an appropriate level of bankside erosion control can be applied.

Actions	By	99	00	01	02	03
6.34 Undertake geomorphological study looking at erosion problems on the Frome 	Agency	●	●			

3.6.6 Water level management plans - The maintenance of the natural flow is clearly critical to conserve the geomorphological characteristics and associated communities of the rivers. In addition, some stretches have associated wetlands, which are dependent on the water regime being maintained. The raising of water levels is often seen as a direct way of improving or rehabilitating the wetland interest of an area. In particular, higher water levels in spring and early summer are of value to wetland birds and plants. This is crucial in the Frome & Piddle area, a recent study by the Royal Society for the Protection of Birds highlighted that only one of seven target species were found to have a breeding population. Water level management plans are seen as a key mechanism for promoting habitat restoration for these species.

Water level management plans allow areas of the floodplain, historically separated from the river, to be opened up and used to their full potential. Making these areas wetter also emphasises the fact that development on the floodplain (see Section 4.2) is unsuitable, as it requires the construction of unsustainable flood defences.

The plans have been developed to integrate all our functions, in order to deliver sustainable water level management and to focus on actions to achieve environmental improvements, where landowners are keen to co-operate.

The following trial areas have been identified:

- Redcliff and Bestwall (lower Frome) - plan complete; implementation during 1999
- Keyworth and Piddle South (lower Piddle) - plan complete; implementation to be determined
- River Frome Site of Special Scientific Interest, including Wareham Meadows Site of Special Scientific Interest - strategic plan to be developed

Monitoring of the trial areas will be required in order to assess the ecological impacts of changes in water levels and will also include botanical, bird and water vole surveys.

Countryside Stewardship target areas (see Section 4.9) include the Frome and Piddle and should be co-ordinated to help

provide funding for water level management plan implementation and development. Water level management plans are also a crucial mechanism by which our biodiversity targets can be achieved, for example, those for coastal and floodplain grazing marsh (see Section 3.3).

Additionally the Agency, in partnership, will support the raising of water levels outside the existing water level management plan areas where appropriate. For example the Dorset Wetland Group has targeted the lower Frome. In addition, target areas for future water level management plans have been highlighted (by the Royal Society for the Protection of Birds) and priorities given. We will work with partners to implement these recommendations.

Partial restoration of water meadows, such as at Maiden Newton, may be appropriate in some locations where the wildlife interest could be enhanced by the reopening of carefully selected disused channels. We would wish to be consulted at the early stages of any proposed scheme (see Section 3.6.9).

Actions	By	99	00	01	02	03
6.35 Implement tidal Frome and Piddle water level management plan, establishing improved water level management in trial areas 	Agency RSPB EN FRCA Owners	●	●	●	●	●
6.36 Implement monitoring strategy on target areas 	Agency	●	●			
6.37 Progress strategic River Frome Site of Special Scientific Interest water level management plan 	Agency	●	●	●		

3.6.7 Review the objectives, efficiency and effectiveness of weedcutting operations - Weedcutting is undertaken for land drainage on the Frome between Dorchester and Wareham. No routine weedcutting takes place on the Piddle, but weed is occasionally cut for agricultural purposes depending on flows. Owners and fisheries interests also carry out weedcutting and the removal and disposal of cut weed is their own responsibility. Disposal of cut weed can become a water quality issue, and drifting weed can create problems for other river users downstream.

An audit of Agency weedcutting for land drainage purposes has been undertaken on the Frome and Hampshire Avon. The main aim of the audit is to assess the effectiveness of reducing water levels in the main channel, to allow ditches to discharge, and to look at possible changes to the riverine or near riverine habitats.

The final report is nearing completion. Any changes to existing cutting practices that results from the audit will need to be fully discussed with English Nature due to the designation of the River Frome as a Site of Special Scientific Interest.

The prospect of the Agency operating a *free weed cut* during set periods is to be discussed with interested parties during 1999. We are interested in views on the Agency's current weedcutting practices, and any proposals for an alternative.

Actions	By	99	00	01	02	03
6.38 Review weedcutting practices and objectives with interested parties following completion of the audit 	Agency EN Owners	●	●			

3.6.8 The adequate provision of flood warning and emergency response - Absolute flood protection is not possible; because of this we need to warn people when there is a risk of flooding. Since September 1996 we have had the lead role in passing flood warnings to people who are at risk, so that they can take action to protect themselves and their properties. Where there is a risk that flooding could occur, flood warnings are issued for the area affected. These warnings are issued to the police, local authorities, media and those in high-risk properties.

A flood warning service is provided on most rivers but not for minor watercourses or for surface water flooding. Detailed

arrangements are documented in the *Dorset Flood Warning Dissemination plan* which can be viewed at our offices.

Where possible we aim to issue a warning at least two hours in advance of flooding. A study into the level of service of flood warning in the South West has been completed and we are now awaiting a report on the feasibility of improvements. This should be available during the autumn.

Actions	By	99	00	01	02	03
6.39 Assess flood warning levels of service feasibility report and prioritise improvements  	Agency	●	●			

3.6.9 The protection of features of archaeological interest - Permanently waterlogged or flooded areas within the river valleys and surrounding Poole Harbour provide the ideal conditions necessary for the preservation of undiscovered archaeological deposits. At present however, although areas adjacent to rivers are likely to be a rich source of archaeological finds, it is difficult to assess or quantify these. Poole Harbour is similarly rich in archaeological history and also very difficult to survey and quantify.

Archaeological features may be at risk from direct damage by our work, for example river maintenance and dredging, and indirectly through the drying out of organic remains with lowered water tables and the deposition of spoil on sites of historic interest. We routinely screen our work for possible impact on known archaeological features.

The Frome and Piddle have significant lengths of surviving water-meadow systems, which allow us a glimpse of past agricultural practices. During 1997/98 we funded a pilot project to investigate the extent, survival and historic importance of water meadows on the river Frome. This found that 33 % of those water meadows identified were flattened meadows showing up only as soil, crop or grass marks and of no particular rarity. However, it also found that 17 % were considered well preserved, visible and reasonably intact and that water meadows on the Frome had survived better than those on other rivers. This also gives an insight into land use along a river system. In the case of the Frome where meadows are well preserved, this implies a lower intensity of land use than elsewhere.

The study has also improved protection of those systems that were identified and allowed a comparison of their age and condition to those found on other rivers. It is hoped that the Piddle will be a future priority for similar work.

There are a number of projects in the area looking to restore water-meadow systems and we will support these where possible. However, this is subject to such actions being shown to be beneficial, the availability of water resources, consideration of fish migration issues and there being no adverse environmental impact (see Section 3.6.6). We would wish to be consulted at the early stages of any proposed restoration scheme.

Actions	By	99	00	01	02	03
6.40 Provide support and advice to the Dorchester and Cerne Abbas water-meadow projects 	Agency Partners	●	●	●		
6.41 Initiate extensive study on the Piddle to identify the extent, survival and historic importance of water-meadows 	Agency			●	●	
6.42 Explore new initiatives to assist with the restoration of the water meadow system at Maiden Newton  	Agency DCC	●				

3.6.10 The development of recreation - We own and manage 129 moorings on the River Frome below Wareham and 3.5 km of the River Piddle, currently let for salmon fishing, between Wareham and Poole Harbour. Site management has recently been reviewed with the production of the Wareham Royalty Site Management Plan. This will determine the actions we need to take over the next five years to maximise the recreational and natural interests of the site.

To date, improving the recreational use of this site to a level in keeping with the area has included the improvement of signage and footpaths along the two rivers and the production of an information board in collaboration with Purbeck District Council. We, in partnership with others, hope to produce more information regarding access opportunities on the lower Frome and Piddle. We will also be undertaking a recreation survey of people who use the site in order to help determine future priorities.

A minority of boat users, by speeding along the river Frome, are posing a risk to other users and contributing to the damage of reed fringes and banks. These are protected habitats important for rare bearded tits and Cetti's warblers. The Agency is undertaking a campaign to promote the importance of existing bank side habitat and the damage caused by breaking the four-knot speed limit. Enforcement of the speed limit by the Agency is undertaken on the Frome between South Bridge, Wareham and the mouth of the river.

There are generally good access opportunities around Wareham, Poole Harbour and the lower catchment, but these decrease upstream. However, opportunities should be taken for increasing public awareness through promotion of the landscape, nature conservation and historic interest of both the Frome and Piddle Valleys. This should be targeted around Wareham, Dorchester and Wool and relate where possible to existing facilities for public access, including opportunities for links to the wider countryside. This could include the creation of paths that link the South West Coast Path with inland routeways, such as the Purbeck Way, and features of interest, particularly around Dorchester. There may also be an opportunity to undertake low-key improvements to existing footpaths and signs along the River Cerne.

South-east Dorset is one of only nine national demonstration projects to develop greenways and quiet roads. We will investigate links for access with riverside and coastal routes in collaboration with Greenlink.

Proposals for the development of links to the South West Coast Path and a cycleway between Wareham and Upton, and Norden to Shell Bay are encouraging. We will review any such proposals and support, with partners, where appropriate.

The Poole Harbour Aquatic Management Plan has been produced by the Poole Harbour Steering Group in order to integrate recreation, nature conservation and other uses within the harbour (see Section 4.4). However, we may work more closely with them in the future to address particular issues such as recreational and user surveys to identify further opportunities.

There is unlimited canoe access on the lower Frome and Piddle (within the tidal limit) and a youth club at Wareham facilitates canoeing activities on the Frome. However, there are only limited opportunities for landing and overnight stays within the harbour and access upstream of the tidal limit on both rivers is limited.

Trout and salmon fishing on the principal rivers dominate recreational fishing within the LEAP area. Sea trout fishing is popular in some areas, and there is also a small fishery on the Sherford River. Brown trout fishing is widely available on the rivers whilst fishing for rainbow trout can be enjoyed at a number of stillwater fisheries. Fishing for coarse species is mainly restricted to stillwaters, the Frome downstream of Wool and the tidal Piddle.

There is excellent sea fishing, notably along the Purbeck coast, where shore-caught bass are a particularly important component of the rod catch.

The Borough of Poole is also consulting us on proposals to address the issue of blue-green algae within Poole Boating Lake and to upgrade the recreational and amenity uses of the lake.

Actions	By	99	00	01	02	03
6.43 Undertake a survey of present recreational activity on the Wareham Royalty site 	Agency DCC PDC	●				
6.44 Produce information promoting current access on the Frome, in particular the <i>Two Rivers Walk</i> in Wareham 	Agency PDC	●	●			
6.45 Consider options for the control of unauthorised moorings and develop a strategy 	Agency PDC EN	●	●			
6.46 Promote low-key access on the River Cerne 	Agency Partners	●	●	●		
6.47 Promote the importance of the existing speed limit along the River Frome taking enforcement action when necessary 	Agency	●	●	●	●	●
6.48 A long-term national and regional recreation supply and demand study will assess existing recreational activities and review any further requirements 	Agency	●	●	●		

3.7 Regulating major industries

Industries with the greatest potential to pollute the environment, known as Part A processes, are subject to a system of Integrated Pollution Control for which we are responsible under the Environmental Protection Act (1990) (Part I). This approach considers releases to air, to water and to land in the context of their effect on the environment as a whole. Further information on the statutory process is provided in the Agency's leaflet *Integrated Pollution Control: An Introductory Guide*.

There are five Integrated Pollution Control authorisations in the LEAP area; Hardchrome (Poole) Ltd and the Sigma-Aldrich Chemical Company hold one each and BP Amoco holds three: Wytch Farm, Kimmeridge Well site and Furzebrook.

Processes known as Part B are the responsibility of local authorities operating within a system known as Local Authority Air Pollution Control. They are also responsible for domestic smoke control and other miscellaneous controls under the Clean Air Act of 1993.

The UK was one of the first countries in Europe to introduce such an integrated regulatory system and many individual processes have now been authorised. A similar approach will be introduced throughout the European Union under the new Integrated Pollution, Prevention and Control Directive, which must be transposed into UK law by 31 October 1999.

These new regulations will supersede the existing approach and will apply to a wider range of industries. We are currently working with the Department of the Environment, Transport and the Regions to ensure that the legislation is workable, and with industry to keep them up to date and informed on what will be expected from them.

We are the principal regulator in England and Wales under the Radioactive Substances Act (1993). The act is concerned with the storage, use and disposal of radioactive substances and in particular, the regulation of radioactive waste. Major nuclear establishments are licensed to operate by the Nuclear Installations Inspectorate, but discharges from these are authorised by the Agency.

Eight sites have been authorised to accumulate and dispose of radioactive waste in the LEAP area. All use small amounts of radionuclides for research purposes and in the diagnosis and treatment of patients. The radionuclides used are short-lived

and disposals are well within authorised limits. There are a further 76 closed source registrations; a closed radioactive source is firmly incorporated, or sealed, in a solid inert non-radioactive material which prevents the dispersion of any radioactive material.

The UK Atomic Energy Authority licensed nuclear site at Winfrith was a major centre for prototype reactor development. All the reactors have been shut down during the 1990s, and are now being decommissioned. The Agency regulates the disposal of radioactive wastes from the site, including the sea outfall which discharges off the Dorset coast at Arish Mell. The UK Atomic Energy Authority is now promoting the use of the site as a technology centre for science and engineering and one of the tenants, AEA Technology PLC, is also regulated by the Agency under the Radioactive Substances Act.

The UK Atomic Energy Authority recently applied to the Agency to reduce significantly the discharge limits of its authorisations for gaseous and liquid radioactive wastes from the site. We are currently considering the application and will be consulting widely on the proposed draft authorisations. A review by the Agency of the site's authorisation led to this application.

The radioactive waste discharges from Winfrith are significantly below the limits in the existing authorisations and the radiological impact of these releases have been shown to be very low.

Actions	By	99 00 01 02 03
7.1 Consult on the proposed changes to the UK Atomic Energy Authority's authorisations to discharge radioactive wastes from the Winfrith site	Agency	●



Radioactive substances are present in the environment as a result of both natural processes and technological developments. The greatest source of radiation to the public is actually that which arises from the natural background sources and this varies across the country. The National Radiological Protection Board calculates dose rates to the public from all radiation sources.

3.8 Improving air quality

Air quality is an important indicator of environmental quality; air pollution can damage flora and fauna and have significant effects on soil and water. Some pollutants, such as acidic gases, can cause serious problems for those with asthma, bronchitis and similar diseases.

Air monitoring networks are sponsored by the Department of the Environment, Transport and the Regions and run by the National Environmental Technology Centre (NETCEN). An air quality information service is available on freephone 0800 556677, Ceefax pages 404, 410-414, Teletext page 106 and on the Internet via NETCEN. The extent to which air quality does or does not comply with standards is reported via these networks.

Vehicles emit a variety of gases, including carbon dioxide and carbon monoxide, particulate materials and other substances into the atmosphere. Air pollution from transport is the responsibility of local authorities; however we are reducing emissions from our own vehicles by reducing mileage, encouraging the use of public transport and promoting the use of video conferencing.

In March 1997, the Government published the UK National Air Quality Strategy, which sets air quality objectives for seven pollutants, Nitrogen Dioxide, Carbon Monoxide, 1,3 Butadiene, PM10, Sulphur Dioxide, Benzene and Lead (see Appendix 5.4), to be achieved by 2005. The air quality standards in the Strategy are set purely with regard to scientific and medical evidence of the effects of the particular pollutant on health. It is the responsibility of local authorities to review and assess air quality in their area.

The review and assessment of air quality will be undertaken in three stages. The first stage is the collation of data and information to determine whether or not it is likely that any of the specified pollutants will exceed the national objectives by the end of 2005. This will assist in identifying the localities which should be the focus of the second and/or third stage review and assessment, with a view to determining the risk of exceedance more precisely.

We will be working closely with local authorities and others to help achieve the objectives of the National Air Quality Strategy, principally through our regulation of emissions to air from Part A processes (see Section 3.7). We have also issued a note to all local authorities which defines our role in local air quality management.

Currently all local authorities in Dorset are collaborating to produce a county-wide assessment of air quality. The local authorities are consulting local people on air quality issues as part of this assessment. We will assist local authorities with their respective reviews by providing monitoring information on locally regulated processes and the impact of regulated processes outside the plan area.

The most significant impact on air quality by a Part A process (see Section 3.7) in the LEAP area comes from emissions of NOx (oxides of nitrogen, see Appendix 5.4), mainly from flare stacks, from the BP Amoco Exploration site at Wytch Farm. An improvement to the plant was commissioned in January 1999 and this has reduced NOx emissions by 30-40%. The Agency will continue to monitor progress of the new plant.

Actions	By	99 00 01 02 03
8.1 Monitor reduction in emissions from the new plant at Wytch Farm  	Agency	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Nationally we have set a series of strategic targets for reductions in emissions from Part A processes (see Section 3.7). International transboundary air flow means that objectives for certain pollutants, notably ozone, may themselves only ultimately be achievable through international co-operation.

3.9 Addressing climate change

There is a broad consensus of opinion that climate changes are occurring because of the impact of human activities on the global atmosphere. The burning of fossil fuels in cars, power stations and industrial processes cause the emission of gases into the atmosphere, including greenhouse gases such as carbon dioxide, which are believed to contribute to long-term climate change. Predictions have been largely based on the modelling of environmental processes and the use of these models to analyse different scenarios.

Current predictions for the UK suggest winters are likely to become wetter and summers drier, reducing overall rainfall totals in the south and east and increasing rainfall in the north. Indications are that this will lead to more variable rainfall patterns and probably increased storminess.

Nationally we have set targets to help ensure that the Government's greenhouse gas reduction targets are met by regulating emissions from Part A processes (see Section 3.7). We will also try and reduce our own energy and fossil fuel consumption; initiatives include reducing energy use in our offices and depots and improving the overall fuel efficiency for the badged vehicle fleet.

Although the effects of climate change are not sufficiently known to make firm predictions for water resources there is now little doubt that it should be taken into consideration in future plans. Some predictions suggest a substantial impact on the availability of water, which could alter how water resources are managed, planned, developed and used.

There is also some concern that if winters become wetter and stormier this will lead to short intense rainfall periods which could increase the risk of soil erosion and diffuse pollution.

Allowances are already made in the design of sea defences to accommodate the estimated rise in sea levels over the design life of the defence. Predicted changes in rainfall patterns and increased storminess are likely to increase the frequency of riverine flooding and subsequent inundation of floodplains.

Should climate change be occurring it will significantly affect naturally occurring communities. Ocean and climate trends in the North Atlantic in recent years are believed to be having major effects on the survival at sea of Atlantic salmon and we are having to take actions to reduce mortality in-river partly because of this (see Section 3.2). Changes in the distribution and the timing of breeding in some bird species may also be occurring as a result of this process.

Many environmental processes such as climate change take place over timescales that extend well beyond annual cycles and can only be properly assessed through long-term measurement. The UK Environmental Change Network, managed by the National Environment Research Council, was established in 1992 as a multi-sectoral and integrated programme to assess change in terrestrial and freshwater ecosystems at a limited number of sites across the country.

There is an Environmental Change Network site at East Holme on the Frome where we collect chemical, biological and river flow data. This information is collated by the Institute of Terrestrial Ecology. A number of other organisations are also

involved in this programme including English Nature and the Scottish Environmental Protection Agency.

3.9.1 Minimising the effect of landfill gas on climate change - Methane and carbon dioxide are the main gases produced at landfill sites as the waste decays. Both carbon dioxide and methane are greenhouse gases; however methane is estimated to be 20 - 30 times more damaging than carbon dioxide. Converting the methane to carbon dioxide by burning, either by flaring or utilising the gas to generate power, can reduce the impact.

We will be reviewing licence conditions for all landfill sites producing landfill gas within the area to ensure that where flaring is possible it is adopted. We will also encourage the constructive use of landfill gas.

Actions	By	99	00	01	02	03
9.1 Review the equipment at the closed landfill site at Warmwell and Hines Pit and, if necessary, replace with equipment that will meet current guidelines 	Agency Operators	●	●			

3.9.2 Potential effects of climate change on sea level - With regard to sea defence schemes, it is regional policy to build in 5 mm sea level rise per year to 2030, and 7.5 mm per year thereafter, to take into account sea level rise as a result of climate change.

Consideration of coastal defences will take place within the strategic framework of Shoreline Management Plans (see Section 4.6). There are two plans in preparation for the coastal zone in this area; we are working in partnership with other organisations in the development of these plans.

The Durlston Head to Hurst Spit Shoreline Management Plan is being managed by Bournemouth Borough Council. The draft report was produced in April 1999 and following consultation, member authorities will present the plan to their respective committees for formal adoption during autumn 1999.

Consultation on the Durlston Head to Portland Bill Shoreline Management Plan was extended to the end of December 1998. The plan is being managed by West Dorset District Council and was adopted by operating authorities earlier this year.

Once adopted, the policies contained within these plans will form the agreed management options for each section of the coast. The options are either to hold the existing line of defence, advance or retreat it or do nothing. In addition, further studies may be recommended by the plans and these may be progressed by one or more of the coastal authorities, resources permitting.

Actions	By	99	00	01	02	03
9.2 Participate in the development and adoption of the Shoreline Management Plans   	LAs Agency	●	●			

4. A better environment through partnership

We need to work in partnership with local authorities, industry, farmers, environmental groups and other interested organisations to resolve the issues identified and to protect this area. This section outlines some of our work with other organisations.

4.1 Working with regional government

4.1.1 Government Offices - The Government Office for the South West is responsible for delivering various government department activities in the region. The Agency aims to work closely with the regional government office wherever possible, and has already been involved in a variety of collaborative regional projects, including the establishment of the *South West Round Table* for sustainable development.

4.1.2 Regional Development Agencies - In April 1999, the Government established statutory, regional economic development agencies for the English regions. This includes the South West of England Regional Development Agency (SWERDA). SWERDA has taken on many of the programmes of English Partnerships, the Rural Development Commission and the Government Office's Single Regeneration Budget with the aim of furthering the economic and social performance of the region.

SWERDA is currently consulting on a draft Regional Economic Strategy for the South West which identifies the environment of the South West as a key driver for the region's economy and quality of life. Linkages were highlighted by the Agency and other regional organisations in a recent publication entitled *An Environmental Prospectus for South West England*.

4.1.3 Regional Chambers - The Government is committed to devolving decision making down to a regional level and intends to move to directly elected regional government in England, where there is a demand for it. To date, the Government has encouraged the establishment of voluntary regional chambers to cover Government Office regions, including the South West Regional Chamber, made up of elected members from local authorities and various interest groups in the region. The Agency is offering advice and support on environmental and sustainability issues.

4.2 Working with local planning authorities

While we can control some of the things that influence the quality of the environment, we have only limited control over the way that land is developed. This is the responsibility of local planning authorities.

Local planning authorities control development through the land use planning system. The planning system has two main components; a forward planning function which allocates and controls land use through the development plan and a development control function which assesses planning applications. The prime consideration in the determination of planning applications is the development plan.

We are a statutory consultee in the land use planning system, and advise planning authorities on the impact of proposed developments together with our requirements for environmental protection. In this respect we aim to provide consistent and effective responses to planning applications. We also work with county and local planning authorities to ensure that suitable policies to protect and enhance the environment are incorporated into development plans. Where possible we will also respond to pre-planning enquiries to maximise environmental opportunities.

Local authorities prepare statutory development plans; the policies in these plans will guide the way that land is developed in the future. Local plan coverage for the LEAP area is summarised below.

Development Plan	Current plan stage
Dorset County Council - Structure Plan	Further modification currently being considered
West Dorset District Council - Local Plan	Adopted November 1998
North Dorset District Council - Local Plan	Inquiry into the deposit version of the plan began in May 1999
Purbeck District Council - Local Plan	Revised Deposit Draft published May 1999
East Dorset District Council - Local Plan	Currently considering pre-enquiry changes to the plan
Borough of Poole - Local Plan	Adopted August 1998; review in progress

The main areas of concern to the Agency and on which we provide advice are highlighted below:

- new developments may be at risk from flooding or may aggravate flood risks elsewhere by obstructing floodplain flows or increasing surface water runoff. We routinely give advice on flood alleviation matters for planning applications and other enquiries, and through local plan consultation
- where a site forms part of the essential floodplain of the river, Government Circular 30/92 guides us to oppose developments which would obstruct floodplain flows or reduce flood water storage to the detriment of land and property in other ownership. Where necessary we will ensure that flood defence measures are incorporated in all new developments. We have a presumption against culverting watercourses and other major modifications to watercourses as this reduces wildlife habitat and amenity value
- we will seek to ensure that appropriate pollution control measures are incorporated in all new developments and that the wildlife and landscape of river corridors are protected and enhanced. Watercourses should be protected from development, and river corridors extended and managed for wildlife

It is often found that the arrangements for the disposal of surface and foul water from proposed developments are overlooked. This information is imperative when considering the likely impact of development proposals on the environment. There is a need to consider the options for foul and surface water disposal at the very beginning of the process, and we would stress the value of consultation with the Agency.

When consulted on surface water drainage arrangements we will promote the use of source control techniques. These are techniques and approaches that can help minimise the effects of development on the environment, for example, to help reduce the risk of pollution and also flooding by preventing rapid surface water runoff or maintaining flood storage capacity. Examples of surface water drainage techniques include soakaways, infiltration devices and attenuation ponds.

We are also consulted on the Minerals and Waste Plans and on applications relating to specific sites. Commenting on waste plans allows the Agency an opportunity to influence the location of new waste sites, as well as policies relating to the operation and aftercare of the sites. The Agency will seek policies, among others, to ensure that leachate and drainage is controlled and monitored and that adequate provision is made for the containment and collection of landfill gas where necessary.

In relation to mineral workings the Agency will seek policies to resist proposals for new mineral extraction where there is likely to be an adverse effect on groundwaters, surface waters and other water bodies and associated habitats. In addition we will encourage restoration works that result in environmental enhancement.

A significant area of the floodplain of the Frome and Piddle contains viable quantities of sand and gravel, and clay reserves. The development of these, together with the more small-scale extraction could potentially cause detrimental impacts on the local environment. However, exhausted workings can provide benefit in the development of more sustainable land use and opportunities for the re-creation of reedbed, carr and other habitats listed under the UK Biodiversity Action Plan (see Section 3.3).

The County Council and the Unitary Authorities, as the Highways Authorities, set out proposals for the strategic road network in the Structure Plan and their Transport Policies and Programme submission.

Although road transport is not our responsibility, it does affect the environment and cuts across many of our nine environmental themes. Through our National Centre for Risk Analysis and Options Appraisal we influenced the Government review of trunk road schemes, to highlight the potential impact they may have on the environment and to ensure that future plans take into account environmental impact.

Where appropriate and required we will comment on road proposals to ensure protection of the environment.

Although there are currently no plans for the development of a bridge across Holes Bay, any future plans would be of concern as the sediment in Holes Bay is significantly contaminated with heavy metal. Although metals are no longer discharged into Holes Bay, metals trapped in the sediments could become more readily available if disturbed.

The Sandford Bypass has recently been deleted from the Dorset County Structure Plan. The joint committee, made up of representatives from Dorset County Council, the Borough of Poole and the Borough of Bournemouth, who are responsible for preparing the Structure Plan concluded, in the light of recent legislative and policy changes, that the bypass is now unachievable.

However we are still currently involved in discussions regarding the remaining development at Holton Heath which

includes an allocation of some 1350 houses. We have also had discussions with Wessex Water concerning the associated sewerage infrastructure. The current proposal from Wessex Water is to treat all sewage from the development at Wareham sewage treatment works. The Agency's position is to ensure the protection of water quality in the River Piddle which would be the receiving watercourse.

Illegal tipping or fly-tipping is a problem that affects the rural as well as the urban environment. It makes the environment unattractive and in some cases can cause land and water pollution and hazards to people.

We share responsibility for dealing with fly-tipping with local authorities. A protocol on fly-tipping was agreed between the Local Government Association and the Agency last year and set out actions to be taken by each party. We intend to carry out proactive measures, where resources are available, to target locations that are being used for large-scale tipping activities (see Section 3.5.4).

Rubbish dumped in watercourses can be a particular problem. We work in partnership with local authorities to mitigate the problem by removing debris where river maintenance work is being undertaken or where our structures or operations are at risk.

The Agency and local authorities have responsibilities for issues of air quality (see Section 3.8) and contaminated land (see Section 3.4) and we need to work together to deliver improvements. Equally important is the need to further develop effective working relationships with local Environmental Health Officers in areas of common interest.

We also have a responsibility to respond to pollution from land-based activities within three miles of the coastline of England and Wales. Emergency planning responsibilities along the coastline overlap and integrate with those of County Councils, Unitary Authorities, Local Authorities, Port Authorities and Harbour Masters, as well as those of the Marine and Coastguard Agency.

In the South Wessex area we work closely with Dorset County Council Emergency Planning in areas of coastal sensitivity mapping, construction and the implementation of emergency plans. Meetings are regularly held with Emergency Planners, Harbour Masters, Local Authorities and English Nature where plans are made and reviewed.

On inland waters, exercises are periodically held to test emergency procedures, on our own or in partnership with other authorities or private operators.

4.2.1 Communication of policy guidance - We have produced several documents that set out our policy guidance in a number of areas:

- Liaison with Local Planning Authorities
- Section 105 Surveys
- Policy and Practice for the Protection of Groundwater
- A Guide to Sustainable Urban Drainage
- Policy and Practice for the Protection of Floodplains
- Safeguard the Environment - A Guide for Developers
- The Environment Agency and Development Plans

The information in these documents should ensure that we provide consistent and up-to-date advice to our customers, and inform local planning authorities, developers and other interested parties about our policies.

Actions	By	99	00	01	02	03
4a Improve working relations with local planning authorities through six-weekly visits to local authority offices	Agency LAs	●	●	●	●	●

4.3 Other management plans

The Town & Country Planning system provides the means of regulating development above the low water mark; regulation of development below the low water mark is controlled by a number of Government departments.

Dorset County Council has taken the lead role in setting up a Coast Forum for Dorset, with representatives from local authorities, environmental agencies, central government departments, businesses and other interest groups. Their aim is to promote a sustainable approach to the management of the coastal zone and to develop an integrated coastal zone management policy. We are a member of this Forum and support its aims.

The Forum has been successful in securing European funding from the EU Life Demonstration Programme on Coastal Zone Management; the total project value is £330k, half of which is being met from European funds. The project is being co-ordinated by Dorset County Council with support from other partners including ourselves, English Nature, Wessex Water, BP Amoco, Borough of Poole, Bournemouth Borough Council, West Dorset District Council and Dorset Wildlife Trust.

In December 1998 the Forum published a draft Dorset Coast Strategy which was subject to consultation. The strategy was based around four key elements:

- Vision - a clear vision for the future of the Dorset coast
- Principles - a basis for widespread agreement on future planning and management
- Priorities - nine priorities for the future management of Dorset's coast
- Action - detailed policy and actions to achieve progress with each priority

The strategy was amended to take account of the responses received, and launched during May 1999. Further details on the Dorset Coast Forum can be found on their internet site at <http://www.dorset-cc.gov.uk/dcf>.

The South Devon and Dorset Coast, from Start Point to Old Harry Rocks, is a proposed World Heritage Site. In order to qualify for inclusion, a natural site should possess natural, physical or biological features of outstanding aesthetic, conservation or scientific importance. The area satisfies the criteria due to the importance of its geology and the use of its unrivalled fossil sequences to reconstruct continuous marine evolution. This is matched by a wide range of landform features and a diverse and impressive display of wildlife habitats.

Keeping Purbeck Special: A Strategy for the Purbeck Heritage Area, published in June 1995 is a detailed policy document that provides a number of proposals and policies for the conservation and management of Purbeck. The strategy has four main sections: *conservation, tourism, transport and making it happen*. The strategy has formed the basis for the work programme of the Purbeck Heritage Committee and has proved an excellent vehicle for attracting funding for a variety of projects.

The recent summary report *2000 Onwards - Charting a new course for the Purbeck Heritage Committee* (June 1999) considers the last five years and looks forward to the next steps as well as listing those projects for which funding has already been identified. It is also proposed that the existing strategy be reviewed.

The Agency is not a member of the Purbeck Heritage Committee; however, we have contributed where appropriate. Local authorities, English Nature, the National Trust and land-owning and farming organisations are represented.

4.4 Poole Harbour Steering Group

The Poole Harbour Steering Group was originally set up to produce management policies for the harbour and in 1988 produced the Poole Harbour Management Policies document, relating primarily to the harbour fringes. This document was updated in 1991 with a revised set of policies. *The Poole Harbour Aquatic Management Plan*, which includes the water body and areas below the low water mark, was published in 1995 and aims to promote the sustainable use of Poole Harbour. It is a practical example of the multi-agency approach. Central to this aim is the recreational zoning plan, which provides a framework for the management of the harbour that balances the needs of recreational (see Section 3.6.10) and commercial users with the needs of the environment and other legitimate interests.

The steering group monitors the operation of the strategy and re-assesses it on an on-going basis. Revisions to the plan will be considered in the context of:

- trends of development in recreational and commercial activities

- increased understanding of the natural resources of the harbour
- the consideration of comments from the annual Poole Harbour Forum

The following organisations make up the steering group:

- Dorset County Council
- English Nature
- Environment Agency
- Borough of Poole
- Poole Harbour Commissioners
- Purbeck District Council
- Royal Society for the Protection of Birds
- Southern Sea Fisheries District Committee
- British Marine Industries Federation

4.5 Poole Harbour Study Group

The Poole Harbour Study Group was launched in March 1999 and is made up of individuals and representatives of organisations with an interest in the natural sciences of Poole Harbour. The aim of the group is to encourage the further study of, and the, collection and dissemination of data on, the wildlife and other natural sciences of the harbour. The Agency was represented at the inaugural meeting.

4.6 Shoreline Management Plans

Shoreline Management Plans set out the coastal defence strategy for lengths of coast, taking into account natural coastal processes, human and other environmental influences and needs. Coastal defence includes sea defence (flooding) and coast protection (erosion). We only have powers in respect of sea defence; local authorities have powers to carry out both sea defence and coast protection. Shoreline Management Plans are not constrained by political or administrative boundaries, and they are promoted for sections of the coast that have been chosen with regard to the sediment movement regime. They are promoted by coastal defence authorities such as the Agency, District and Borough Councils.

The objectives of these plans are to improve the understanding of coastal processes, develop sustainable coastal defence policies, and to set out arrangements for continued consultation with interested parties. Shoreline Management Plans inform Coastal Zone Management plans that cover a much wider set of coastal issues including the interests of fishing and tourism. Although these plans are voluntary, it is intended by the Ministry of Agriculture Fisheries and Food that they will be referred to when developing and revising county structure and local plans. There are two plans in preparation for the coastal zone in this area (see Section 3.9.2).

4.7 Working with the water industry

The water companies' improvement plan for the period 1995-2000 is known as Asset Management Plan 2 (AMP 2). AMP2 was developed in 1994 along guidelines agreed between the former National Rivers Authority and Department of the Environment, the water services companies and the Office of Water Services (OFWAT), the Government's regulatory agency for the water industry.

OFWAT is undertaking a review of water prices that will result in a review of improvements required for the period 2000-2005; the outcome of this will be AMP3. The Agency has been reviewing, for agreement with the Department of the Environment, Transport and the Regions, those sewage discharges where improvement is required. Our proposals have now been considered and translated into detailed environmental obligations, where we expect the improvements to take place by 2005. Many of these schemes will be delivered before 2005; the water companies are currently preparing their

Strategic Business Plans which will confirm the delivery dates of these schemes.

We expect improvements to the following continuous discharges to be completed in AMP3.

Discharge	Receiving water	Improvements expected
Dorchester STW	Frome	Reduction of effluent phosphate concentrations (see Section 3.6.1)
Dorchester STW	Frome	Improved secondary treatment to achieve more stringent ammonia standard (see Section 3.6.1)
Lulworth screened discharge	Purbeck coast	Secondary treatment of effluent to achieve compliance with the guideline standards of the EC Bathing Waters Directive (see Section 3.6.1)
Lytchett Minster STW Poole STW Wareham STW	Poole Harbour	Ultra-violet treatment of effluent to maintain compliance with guideline standards of the EC Bathing Waters Directive and ensure compliance with standards at EC Shellfish Water Directive sites (see Sections 3.6.1 and 3.6.2)
Sydling St Nicholas STW	Sydling Water	Resolution of storm tank problems to meet requirements of the EC Urban Waste Water Treatment Directive (see Section 3.6.1)

We also expect AMP3 to deliver improvements to the sewerage infrastructure (see Section 3.6.1).

Investigations and investment required to protect rivers and wetlands from the effects of abstraction have also been considered, details of which are shown below.

Site name	Source of problem	Driver	Improvements expected
River Piddle	Groundwater abstraction	Non SSSI	See Section 3.1.2; to be implemented by March 2005
South Winterbourne	Groundwater abstraction	Non SSSI	Currently reviewing options for further investigations, see Section 3.1.3. Investigate by March 2005
River Hooke	Surface water abstraction	Non SSSI	Currently reviewing options for further investigations, see Section 3.1.3. Investigate by March 2005

AMP3 also required the water companies to revise their water demand forecasts, review their resource availability and consider any potential resource options to meet forecasted deficits within the planning horizon. In parallel with this we required the water companies to complete Water Resource Plans which were submitted in March 1999. The Water Resource Plans require water companies to produce demand forecasts and compare them with their available resources for the next 25 years. Potential demand or resource-management options, including leakage reduction, have to be considered, and, if necessary, any resource-development options which may be required to meet the forecast demand. Our response to these plans was published in *Planning Public Water Supplies*. The companies will be expected to update these plans on an annual basis and our response also detailed the main changes we would wish to see incorporated in the revisions of the plans.

4.8 Local Agenda 21

Local authorities are assisting their communities in developing local strategies and action plans for sustainable development. The approach adopted varies, but many Local Agenda 21 groups set up working groups to look at specific issues. Government guidance expects each local authority to produce a Local Agenda 21 plan by the year 2000.

The Agency contributes indirectly to Local Agenda 21 by considering sustainability whilst carrying out all its activities. Links with organisations such as the Government Office, the Round Table for Sustainable Development and a local sustainability group for the South West ensure involvement in Local Agenda 21 at a regional level. Expert advice is available following the establishment of individual staff contacts for each local authority via our Local Agenda 21 seminar held in Shaftesbury in October 1997. For example, we were actively involved in the Poole Local Agenda 21 group during 1998 in promoting the restoration of urban ponds in the Poole area, contributing £9000 towards the projects.

We also provide information in various formats including public registers, leaflets and our web site.

Actions

4b Supply information proactively to Local Agenda 21 groups where possible

By

99 00 01 02 03

Agency

● ● ● ● ●

4.9 Working with farmers

We promote agricultural incentive schemes as a means of supporting forms of agriculture which protect and enhance wildlife habitats and landscape. There is one Environmentally Sensitive Area in the LEAP area, South Wessex Downs (see Map 2); this scheme offers voluntary management agreements to farmers and landowners who agree to adopt a package of environmentally sensitive farming packages for which compensation is received. Rates of payment vary to reflect the level of participation and different management prescriptions which must be followed.

For land outside Environmentally Sensitive Areas, the Ministry of Agriculture Fisheries and Food main agri-environment scheme is the Countryside Stewardship scheme. Voluntary ten-year agreements are available to farmers and landowners covering a wide range of measures, each of which has a standard payment, and which are targeted at certain English landscapes. The scheme aims to enhance the landscape, wildlife and historic features of the target landscape, including watersides and wetlands; it also provides payments for allowing permissive access where this is appropriate. Within the plan area there are three target areas; the Dorset Heaths, the Rivers Frome and Piddle (including grazing marshes on the fringes of Poole Harbour) and South Purbeck.

4.10 Working with business

We are working with local businesses and their representatives to promote pollution prevention and waste minimisation. Recent waste minimisation initiatives, our oil care campaign and our training video for construction workers are practical examples of how we intend to combine education and communication to prevent pollution.

4.11 Conservation

We will continue to collaborate with other organisations to set targets, prepare and implement local action plans for key species and habitats and to set interim targets where insufficient information is available. We will also contribute towards the appropriate management of protected sites and species in the plan area. Other sites and species lacking statutory protection are also valued and require sympathetic management. We will consult with English Nature, Wildlife Trusts and other conservation organisations where known sites may be affected by our activities or activities we consent.

4.12 Development of recreation

Many people use water areas such as rivers, canals, still waters and the coast for a variety of recreational activities. Water-related activities include both those which are land based and water based such as angling, cycling, bird watching, walking, canoeing, water-skiing and surfing.

Sustainability is an underlying theme to all our activities and the promotion of recreation and management needs to be balanced with other interests. There are a number of organisations with an interest in countryside and water recreation and we will work in partnership, where appropriate, to promote and develop the recreational use of the area where this can contribute to a balance of uses (see Section 3.6.10).

4.13 Education

We recognise that to achieve our vision, *a better environment for present and future generations*, we need to balance regulation with education.

Broad-based education covering the community, educational and industrial sectors will result in a more informed society that is better able to understand the environment, its needs, and the impact of society's activities upon it. In particular, we seek to:

- educate people to help them to make informed judgements about future environmental decisions. Initiatives being developed include: teacher training, advising and assessing Eco-Schools, providing environmental data to schools and producing case-study materials suitable for secondary schools, and in further and higher education

- educate industry through consultation, collaborative activities and targeted campaigns to promote a culture of prevention rather than cure
- raise public awareness of environmental issues to engender in society a common ownership of the environment and its challenges

Further information can be obtained from the Customer Services Centre at our Blandford office or from the Regional Education Co-ordinator at our Exeter office. We have also published a leaflet *Education Resources for Schools*.

Actions	By	99	00	01	02	03
4c Work with the Education Business Partnership to help disseminate environmental information to educational establishments	Agency EBP	●	●	●	●	●

4.14 Make a Difference environmental improvement projects

We have created a small fund to finance a few low-to medium-cost environmental improvement projects each year. Where possible we seek partners to match funding. The list below highlights those *Make a Difference* projects which are being undertaken or have been undertaken in this area.

- support for LA21 initiatives in the Poole area (see Section 4.8)
- support for the Dorset Biodiversity Project Officer in collaboration with other conservation organisations (see Section 3.3)
- promotion of the Dorset Vole and Otter project with the Dorset Wildlife Trust (see Section 3.3)
- biodiversity initiatives including the production of interpretation boards for chalk streams at Dorchester
- production of waste management and recycling videos
- river rehabilitation projects to enhance habitats on the River Frome downstream of Dorchester (see Section 3.2)

4.15 Public Registers and access to environmental information

We maintain several public registers that can be inspected at most Agency offices. Information is usually provided free of charge, but for large and complex requests we may charge 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.

Some environmental details and information about our public registers are available on the Internet at <http://www.environment-agency.gov.uk>. Further information is provided in the Agency's leaflet *A Guide to Information Available to the Public*.

Actions	By	99	00	01	02	03
4d Undertake a campaign to publicise environmental information	Agency	●	●	●	●	●

5. Appendices

5.1 Duties, powers and interests of the Environment Agency

The following tables summarise the Agency's duties, powers and interests.

Water Resources

The Agency has a duty to conserve, redistribute, augment and secure the proper use of **water** resources

The Agency has powers to:

- grant or vary water abstraction and impoundment licences on application
- revoke or vary existing licences to reinstate flows or levels to surface waters or groundwaters which have become depleted as a result of abstraction, and are subject to a liability for compensation
- serve Conservation Notices (S30) on minerals operators to control the process of dewatering in quarries

The Agency has an interest (but no powers) in:

- the more efficient use of water by water companies, developers, industry, agriculture and the public and the introduction of water efficiency measures and suitable design and layout of the infrastructure

Partnership:

- the Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water
- the Agency acknowledges that new resources may be needed in the future and supports a twin-track approach of planning for water resource development alongside the promotion of demand-management measures
- the Agency seeks to influence planning decisions for new development by encouraging the inclusion of water conservation measures in new properties, particularly in areas where water resources are under stress, and by ensuring that planning authorities allow for the lead time for resource development

Flood Defence

The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment

The Agency has powers to:

- control, through Land Drainage consents, development within 8 m of main river (Water Resources Act 1991, Section 109) or construction of a structure that would affect the flow of an ordinary watercourse (Land Drainage Act 1991, Section 23)
- produce flood risk maps for all main rivers under Section 105 of the Water Resources Act 1991
- undertake works to main rivers using permissive powers
- issue flood warnings to the public relating to main rivers, local authorities and the police
- consent mineral workings within 16 m of main rivers

The Agency has an interest (but no powers) in:

- granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by local planning authorities
- installation of surface water source control measures
- supervising the maintenance of ordinary watercourses which is a local authority remit, but may impact on main rivers
- installation of buffer zones which reduce flood risk and have significant environmental benefits
- urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance

Partnership:

- as a statutory consultee on planning applications within main river floodplains the Agency offers advice based on knowledge of flood risk. We also advise on the environmental impacts of proposed floodplain development
- the Agency will encourage best practice, including source control measures and common standards, among local authorities and riparian owners to protect and enhance the environment
- the Agency works with civil authorities to prepare flood warning dissemination plans and supports their endeavours to protect communities at risk

Waste Management

The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities

The Agency has powers to:

- vary waste management licence conditions
- suspend and revoke licences
- investigate and prosecute illegal waste management operations

The Agency has an interest (but no powers) in:

- the siting and granting of planning permission for waste management facilities. This is conducted by the waste industry and local planning authorities. The Agency, as a statutory consultee on planning applications, can advise on such matters

Partnership:

- the Agency will work with waste producers, the waste management industry and local authorities to reduce the amount of waste produced, increase re-use and recycling and improve standards of disposal
-

Water Quality

The Agency has a duty to monitor, protect, manage, and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution

The Agency has powers to:

- issue discharge consents to control pollution loads in controlled waters
- regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharge consents
- issue works notices where action is required to reduce the risk of pollution
- prosecute polluters and recover the costs of clean-up operations
- serve prohibition notices (with or without conditions) on highway authorities to require treatment and pollution measures for highway runoff

The Agency has an interest (but no powers) in:

- the greater use of source control measures to reduce pollution by surface water runoff
- prevention and education campaigns to reduce pollution incidents
- the provision of highway runoff control measures which is a highway authority remit

Partnership:

- the Agency will liaise with local authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source control measures. As a statutory consultee on planning applications, the Agency will advise local planning authorities on the water quality impact of proposed developments
-

Air Quality

The Agency has a duty to implement Part 1 of the Environment Protection Act 1990

The Agency has powers to:

- regulate the largest technically complex and potentially most polluting processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO
- have regard to the Government's National Air Quality Strategy when setting standards for the releases to air from industrial processes

The Agency has an interest (but no powers) in:

- the vast number of smaller industrial processes which are controlled by local authorities
- control over vehicular emissions and transport planning

Partnership:

- the Agency provides data on IPC processes and advice on planning applications to local authorities
- the Agency is willing to offer its technical experience to local authorities on the control of air pollution
- the Agency wishes to liaise with local authorities in the production of Air Quality Management Plans
- the Agency will advise and contribute to the government's National Air Quality Strategy

Radioactive Substances

The Agency has a duty under the Radioactive Substances Act 1993 to regulate the use of radioactive materials and the disposal of radioactive waste

The Agency has powers to:

- issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public

The Agency has an interest (but no powers) in:

- the health effects of radiation

Partnership:

- the Agency will work with users of the radioactive materials to ensure that radioactive wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with the Ministry of Agriculture, Fisheries and Food to ensure that the disposal of radioactive waste creates no unacceptable effects on the food chain
 - the Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites
 - the Agency will work with the Health and Safety Executive on worker protection issues at non-nuclear sites
-

Contaminated Land

The Agency has a duty to develop an integrated approach to the prevention and control of land contamination, ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment

The Agency has powers to:

- regulate the remediation of contaminated land designated as special sites
- prevent future land contamination by means of IPC, water quality and other statutory powers
- report on the state of contaminated land

The Agency has an interest (but no powers) in:

- securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land

Partnership:

- the Agency supports land remediation and will promote this with developers and local authorities and other stakeholders
-

Conservation

The Agency will further conservation, wherever possible, when carrying out water management functions; have regard to conservation when carrying out pollution control functions; and promote the conservation of flora and fauna which are dependent on the aquatic environment

- the Agency has no direct conservation powers but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation

The Agency has an interest (but no powers) in:

- the conservation impacts of new development. These are controlled by local planning authorities
- protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to local authorities and developers to protect the integrity of such sites or species
- implementation of the UK Biodiversity Plan

Partnership:

- the Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation. The Agency will work with developers, local authorities, conservation bodies and landowners to conserve and enhance biodiversity

Landscape

The Agency will further landscape conservation and enhancement when carrying out water management functions; have regard to the landscape when carrying out pollution control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land

The Agency has powers to:

- further the conservation and enhancement of natural beauty when exercising its water management powers and have regard to the landscape in exercising its pollution control powers

The Agency has an interest (but no powers) in:

- the landscape impact of new development, particularly within river corridors. This is controlled by local planning authorities

Partnership:

- the Agency produces River Landscape Assessments and Design Guidelines which it uses when working with local authorities and developers to conserve and enhance diverse river landscapes
-

Archaeology

The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate

The Agency has powers to:

- promote its archaeological objectives through the exercise of its water management and pollution control powers and duties

The Agency has an interest (but no powers) in:

- direct protection or management of sites of archaeological or heritage interest. This is carried out by local planning authorities, County Archaeologists and English Heritage

Partnership:

- the Agency will liaise with those organisations which have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests
-

Fisheries

The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries

The Agency has powers to:

- regulate fisheries by a system of licensing
- make and enforce fisheries byelaws to prevent illegal fishing
- promote the free passage of fish and consent fish passes
- monitor fisheries and enforce measures to prevent fish entrainment in abstractions
- promote its fisheries duty by means of land drainage consents, water abstraction applications and discharge applications

The Agency has an interest (but no powers) in:

- the determination of planning applications which could affect fisheries

Partnership:

- many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries

Recreation

The Agency has a duty to promote recreational use of rivers and water space

The Agency has powers to:

- contribute towards its recreation duty through the exercise of its statutory powers and duties in water management

The Agency has an interest (but no powers) in:

- promotion of water sports. This is carried out by the Sports Council and other sports bodies

Partnership:

- the Agency will work with the Countryside Agency, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment
-

Navigation

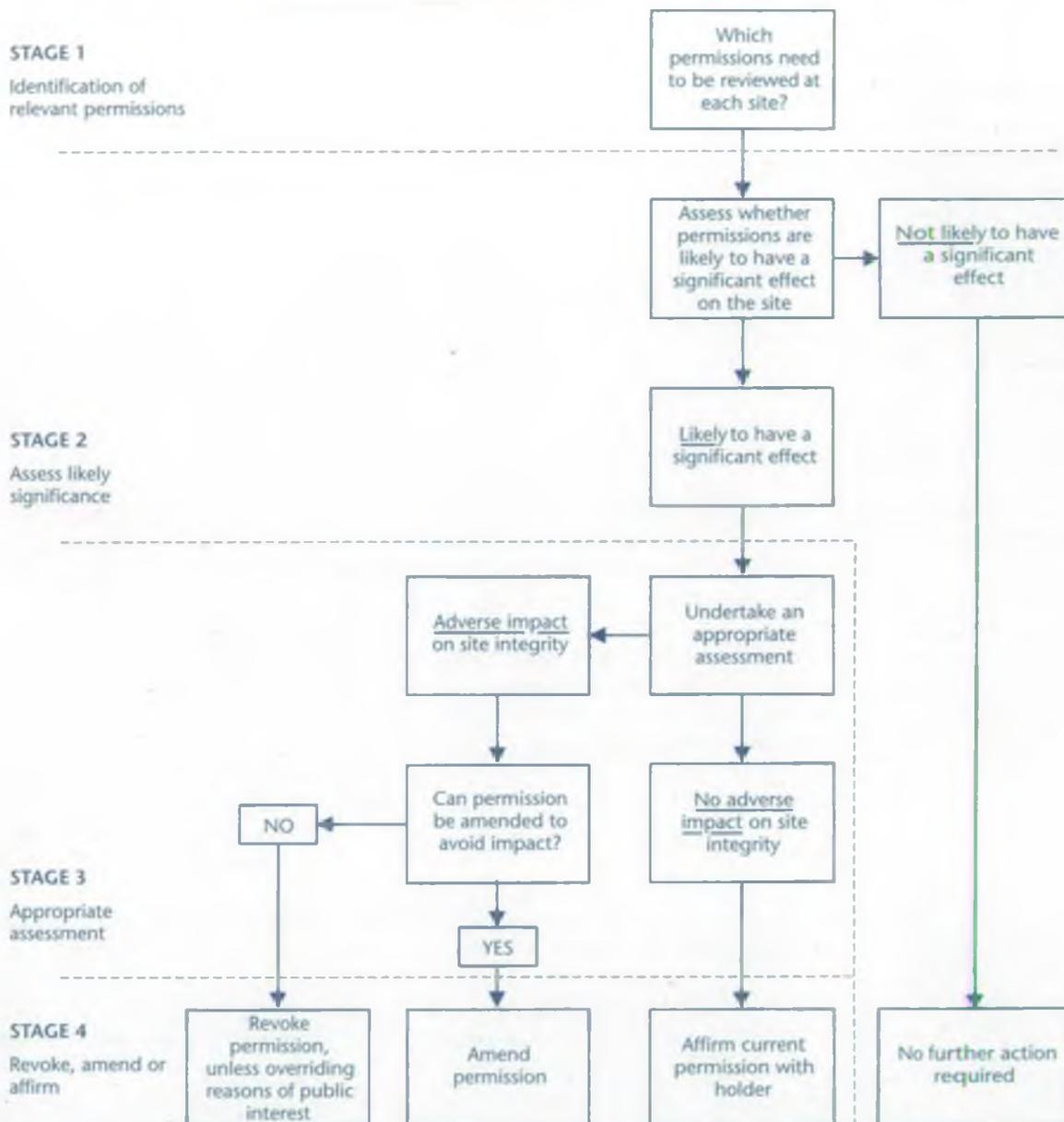
We have no navigation responsibilities in the South West Region

5.2 EC Habitats and EC Birds Directive

Further details on the relevant sites within the LEAP area are given below (see Section 3.3.1):

Area	Designation	Qualifying interests
Dorset Heaths (Purbeck and Wareham) and Studland Dunes	cSAC	Wet heathland and cross-leaved heath Coastal dune heathland Dry heaths Southern damselfly Depressions on peat substrates Shifting dunes Shifting dunes with marram grass
Dorset Heaths	cSAC	Wet heathland with cross-leaved heath Dry heaths Southern damselfly Depressions on peat substrates
Isle of Portland to Studland Cliffs	cSAC	Early gentian Vegetated sea cliff
St Aldhelms Head to Durlston Head	cSAC	Chalk-rich dry grassland, including important orchid sites Vegetated sea cliffs Early gentian
Poole Harbour	SPA	Regularly used by 1 % or more of the UK population of three species listed in Annex 1 of the EC Birds Directive, in any one season (Avocet, Mediterranean gull, Common Tern) It is also used by 1 % or more of the following internationally important bird populations in any one season: Black-tailed godwit, shelduck Regularly used by over 20,000 waterfowl or seabirds in any one season
	Ramsar	Regularly supports 20,000 waterfowl Regularly supports 1 % of the individuals in a population of waterfowl: Avocet, Black-tailed godwit, Common Tern, Mediterranean gull, Shelduck Is a particularly good example of a <i>natural harbour</i> Contains an appreciable assemblage of rare, vulnerable or endangered species of plant or animal
Dorset Heathlands	SPA	Regularly used by 1 % or more of the UK population of five species listed in Annex I of the EC Birds Directive, in any one season (Dartford Warbler, Nightjar, Woodlark, Hen Harrier, Merlin)
	Ramsar	Supports particularly good examples of wet heathland habitats which are characteristic of the heathlands of the Atlantic biogeographical region of western Europe Contains examples of southern wet heaths and cross-leaved heaths Contains an appreciable assemblage of rare, vulnerable or endangered species of plant or animal High species richness and ecological diversity of the mire communities

5.2.1 Summary flowchart of the review of consents process



5.3 The setting and maintenance of water quality targets

We manage water quality by setting targets called River Quality Objectives (RQOs). They are intended to protect current water quality and future use, and we use them as a basis for setting consents for new discharges and planning future water quality improvements.

We have set RQOs using a classification scheme known as the River Ecosystem (RE) Classification which was introduced by the former National Rivers Authority, following public consultation, in 1994. The RE Classification comprises five hierarchical classes as summarised below and sets standards for dissolved oxygen, biochemical oxygen demand, total ammonia, free ammonia, pH, copper and zinc.

RQO (RE Class)	Class Description
RE1	Water of very good quality suitable for all fish species
RE2	Water of good quality suitable for all fish species
RE3	Water of fair quality suitable for high class coarse fish populations
RE4	Water of fair quality suitable for coarse fish populations
RES	Water of poor quality which is likely to limit coarse fish populations

The RQOs we have set must be achievable and sustainable; we must be able to identify what needs to be done to meet the RQO and to ensure as far as practicable that water quality can be maintained at this level in the future.

Where we are unable to identify solutions or resources to resolve current water quality problems, we may also have set a Long Term RQO. We will measure compliance against RQOs but use Long Term RQOs as a basis for setting consents for new discharges. This will ensure that future developments will not prevent us from achieving our long-term objectives.

In certain circumstances we can *set aside* data, that is we will not take into account some or all of the results of a particular determinand when we assess compliance with an RQO. We will set aside data where high concentrations of metals or low pH are caused by the natural geology of the LEAP area. This allows us to protect good water quality reflected by other parameters in the RE classification. There are no set asides in the 1997 classification of the LEAP area.

The assessment of 1998 compliance with RQOs is based on three years of routine monitoring data from the Public Register collected between 1996 and 1998. Failures to meet RQOs may be either *significant* or *marginal*. Significant failures are those where we are 95 % certain that the river stretch has failed to meet its RQO. Marginal failures are those where we are less certain (between 50 % and 95 %) that the stretch has failed to meet its RQO. Non-compliance with RQOs is discussed in Sections 3.6.1, 3.6.3 and 3.6.4 and shown on Map 4.

In addition to the RE scheme, we also assess water quality using the General Quality Assessment (GQA) scheme. Generally, the RE scheme and RQOs are used for planning water quality improvements and are important in terms of making a statistically robust assessment of water quality. The GQA scheme's purpose is to report at a general level on river quality and to show trends in quality across the country with time.

The GQA scheme uses a subset of the standards from the RE system; dissolved oxygen, biochemical oxygen demand and total ammonia. At the present time, comparisons are made annually against a baseline year of 1990. Quinquennial surveys are used as state of the environment indicators. The GQA scheme also includes biological, aesthetic and nutrient grade components, the later two have yet to become fully operational.

River quality is also managed by the standards set in several EC Directives, these are reported annually by the Agency to the Department of the Environment, Transport and the Regions. Incidents of failure to comply with these standards are outlined in Sections 3.6.1, 3.6.2 and 3.6.3.

There is provision in the Water Resources Act 1991 for the development of Statutory Water Quality Objectives (SWQOs) to be set to give RQOs a statutory basis. As yet the Government have not proceeded with implementing SWQOs.

5.3.1 Classified stretches

River	Stretch boundaries	RQO	Dated
Dorset Frome	Burl Farm to confluence with the Wraxall Brook	2	
	Confluence with the Wraxall Brook to confluence with the Hooke	2	
	Confluence with the Hooke to Frampton	2	
	Frampton to confluence with the Cerne	1	
	Poundbury to downstream of the Dorchester bifurcation	2	
	Confluence with the Cerne to Frome Whitfield	2	
	Frome Whitfield to downstream of the Dorchester bifurcation	2	
	Downstream of the Dorchester bifurcation to Dorchester sewage treatment works	2	
	Dorchester sewage treatment works to confluence with the South Winterbourne	2	
	Confluence with the South Winterbourne to East Burton	1	
	Downstream of Pallington to confluence with the Tadnoll Brook	1	2000
	Downstream of Golden Springs fish farm to Moreton	1	2000
	Confluence with the Tadnoll Brook to East Burton	1	
	East Burton to downstream of the Water Barn bifurcation	1	
	Upstream of the Water Barn bifurcation to downstream of the Water Barn bifurcation	1	
	Downstream of the Water Barn bifurcation to East Stoke (South)	2	
	Upstream of the Wool bifurcation to East Stoke (North)	2	
	East Stoke to Holme Bridge	2	
	Holme Bridge to Wareham (estuary)	2	
	Hooke	Upstream of Hooke fish farm to downstream of Hooke fish farm	2
Downstream of Hooke fish farm to Hooke		2	
Hooke to Kingcombe		2	
Sydling Water	Kingcombe to confluence with the Frome	2	
	Up Sydling to downstream of Huish fish farm	1	
	Downstream of Huish fish farm to Shearplace Hill	1	
	Shearplace Hill to Lower Magiston	1	
	Lower Magiston to downstream of Lower Magiston fish farm	1	2000
Cerne	Downstream of Lower Magiston fish farm to confluence with the Frome	1	2000
	Cerne Abbas to upstream of Nether Cerne fish farm	1	
	Upstream of Nether Cerne fish farm to Nether Cerne	1	
South Winterbourne Tadnoll Brook	Nether Cerne to confluence with the Frome	1	
	Source to confluence with the Frome	1	
	Broadmayne to the confluence with Empool Bottom	2	
	Confluence with Empool Bottom to Ryclose	2	
	Ryclose to Moigne Combe	2	
Piddle	Moigne Combe to confluence with the Frome	2	
	Manor House to Alton Pancras	1	
	Alton Pancras to confluence with the Druce Stream	2	
	Confluence with the Druce Stream to Burleston Bridge	1	
	Burleston Bridge to Brockhill	1	
	Brockhill to Chamberlaynes Farm	1	
	Chamberlaynes Farm to downstream of the Trigon bifurcation	1	
	Upstream of the Trigon bifurcation to upstream of 8 Hatch fish farm	1	
	Upstream of 8 Hatch fish farm to 8 Hatch fish farm	1	
	8 Hatch fish farm to downstream of the Trigon bifurcation	2	
	Downstream of the Trigon bifurcation to Wareham (estuary)	2	
Devil's Brook	Ansty to Burleston Bridge	1	
Bere Stream	Milborne St Andrew to confluence with the Piddle	1	
Corfe	Bucknowle House to Estuary	2	
Sherford River	Upstream of Morden Park Lake to Organford	2	
	Organford to Estuary	2	

5.4 National Air Quality Strategy

The table below gives further details on the seven pollutants for which air quality objectives have been set in the National Air Quality Strategy (see Section 3.8).

Pollutant	Comment
Nitrogen Dioxide	Gas produced by the reaction of nitrogen and oxygen in a two-stage reaction which initially results in the formation of nitric oxide, which is then oxidised to nitrogen dioxide in the atmosphere. Both are oxides of nitrogen and together they are referred to as NO _x . The main source of oxides of nitrogen is from motor vehicles; other sources include non-nuclear power stations and industrial activity
Carbon Monoxide	Gas produced by the incomplete combustion of organic substances. The common sources are motor vehicles and combustion related industries
1,3 Butadiene	Used in industry mainly in the manufacture of synthetic rubber and in the petroleum industry
PM10	Particles of less than 10 µm in diameter. Particles arise from both man-made and natural sources
Sulphur Dioxide	Gas produced from the combustion of fossil fuels, sources include power stations and other combustion industries
Benzene	Not naturally produced and commonly reaches the atmosphere through the combustion of petroleum fuels and the processing and transportation of these fuels
Lead	The main source of airborne lead is from the combustion of petrol in motor vehicles. The other main sources are from industry and waste disposal

6. Glossary

Abstraction - Removal of water from surface or groundwater

Algae - A diverse group of simple aquatic plants, which can grow in rivers and in the sea in great profusion (blooms)

AOD - Above ordnance datum

Area of Outstanding Natural Beauty - An area designated by the Countryside Commission under the 1949 National Parks and Access to the Countryside Act for its particularly attractive landscape and unspoilt character, which should be protected and enhanced as part of the national heritage

BAP - Biodiversity Action Plan

BATNEEC - Best Available Techniques Not Entailing Excessive Cost

Blue-green algae - Ubiquitous, usually microscopic, plankton with properties characteristic of bacteria and algae. They can grow to excess to form dense blooms and scums, and are known to produce chemicals toxic to mammals

Biochemical Oxygen Demand - A measure of the amount of dissolved oxygen consumed in water, usually as a result of organic pollution

BPEO - Best Practicable Environmental Option

By-catch - This term can be applied to any directed fishery, and simply refers to non-target species which are caught

Civic amenity site - Facility provided by a local authority for householders to take bulky household waste, garden wastes and other household wastes which are not normally taken by vehicles on domestic waste collection rounds

Cumec - A measure of flow equating to one metre cubed per second (1m³/s)

DDC - Dorset District Council

Development - With certain exceptions means the carrying out of building, engineering, mining or other operations, in on over or under land or the making of any material change in the use of any buildings or other land

Dissolved oxygen - Oxygen dissolved in water; suitable levels are essential for the maintenance of aquatic life

DRWG - Dorset Reedbed Working Group

DWT - Dorset Wildlife Trust

EBP - Education Business Partnership

EC - European Community

Economic level of leakage - This is the level of leakage where the cost of finding and repairing leaks to save a given volume of water is the same as the cost of supplying that water. This can in principle include environmental and social costs

EN - English Nature

Eutrophication - Nutrient enrichment of water

Floodplain - All land adjacent to a watercourse over which water flows in times of flood or would flow but for the presence of flood defences where they exist

FRCA - Farming and Rural Conservation Agency; an executive Agency of MAFF and the Welsh Office. They assist the

Government in the design, development and implementation of policies on the integration of farming and conservation, environmental protection and the rural economy

Highways Authority - The Department of the Environment, Transport and the Regions is responsible for motorways and trunk roads. County Councils and Unitary Authorities are the Highways Authorities with responsibility for maintenance, improvement and creation of public highways under the Highways Act

HMSO - Her Majesty's Stationery Office

IPC - Integrated Pollution Control

LAs - Local authorities

Local Plan - A Local Authority statutory document which elaborates the broad policies and proposals set out in the Structure Plan

MAFF - Ministry of Agriculture, Fisheries and Food

Main River - All watercourses shown as such on the statutory main river maps held by the Agency and MAFF

MI/d - A measure of flow equating to one million litres per day

MoD - Ministry of Defence

Multi-Sea Winter - Adult salmon which have spent more than one winter at sea (2Sea Winter, two winters at sea, 3Sea Winter, three winters at sea)

National Rivers Authority - One of three predecessor bodies to the Environment Agency

NT - National Trust

Nutrient - Chemical essential for plant growth, for example nitrate, phosphate

Ordinary Watercourse - A watercourse which does not form part of a main river

PDC - Purbeck District Council

PE - Population Equivalent, a measure of the polluting load of an organic discharge. One population equivalent is defined as the organic degradable load with a BOD of 60 g of oxygen per day. This corresponds to the domestic effluent load produced by one person

RE Class - River Ecosystem Class

Return Period - Relates to the long-term average time interval between events of a particular magnitude

River Catchment - Whole area which drains either naturally or with artificial assistance to a river

RSPB - Royal Society for the Protection of Birds

Salmonids - Salmon, brown and sea trout and rainbow trout

Secondary treatment - The treatment of sewage, usually after the removal of suspended solids

Section 105 survey - Flood risk surveys produced as required by Section 105 of the Water Resources Act 1991; intended to show the estimated flooding extents along certain river reaches of the 1-in-100 year event (1-in-200 for tidal reaches) or the most significant historical flood, whichever is the greater

Spring-running salmon - Fish that are caught or enter the river before 1st June. These are more generally referred to as **early-running fish**. Those caught or entering the river from 1st June onwards are often described as **late-running fish**

SSSI - Site of Special Scientific Interest. A site of national importance designated under the Wildlife and Countryside Act 1981. Habitats, sites for individual species, geology and land forms may be designated

Standards of Service - An indication of the property at risk over a defined stretch of a watercourse when described as House Equivalents. For ease of understanding, land use is converted into House Equivalents per kilometre; by this we mean the number of houses susceptible to flooding at a given level. This measure guides flood defence maintenance work

Stream augmentation - the pumping of water into a watercourse to increase its flow

Structure Plan - A statutory document which sets out the policies and general proposals of the County Council and of the Unitary Authorities in respect to development and other use of land

STW - Sewage treatment works

Total ammonia - Nitrogen present as ammonia and ammonium ion

Tributary - A stream or river which feeds into a larger one

UNESCO - United Nations Educational, Scientific and Cultural Organisation

Watercourse - The term includes all rivers, streams, ditches, drains, cuts, dykes, sluices, sewers (other than public sewers) and passages through which water flows

WDDC - West Dorset District Council

Winterbourne - A stream which only flows seasonally, usually in winter

World Heritage Site - Protected under the World Heritage Convention, which aims to protect natural and cultural areas of outstanding universal value. These sites are selected by the World Heritage Committee and make up the World Heritage List. They are recognised by the international community as possessing international value

WWSL - Wessex Water Services Ltd

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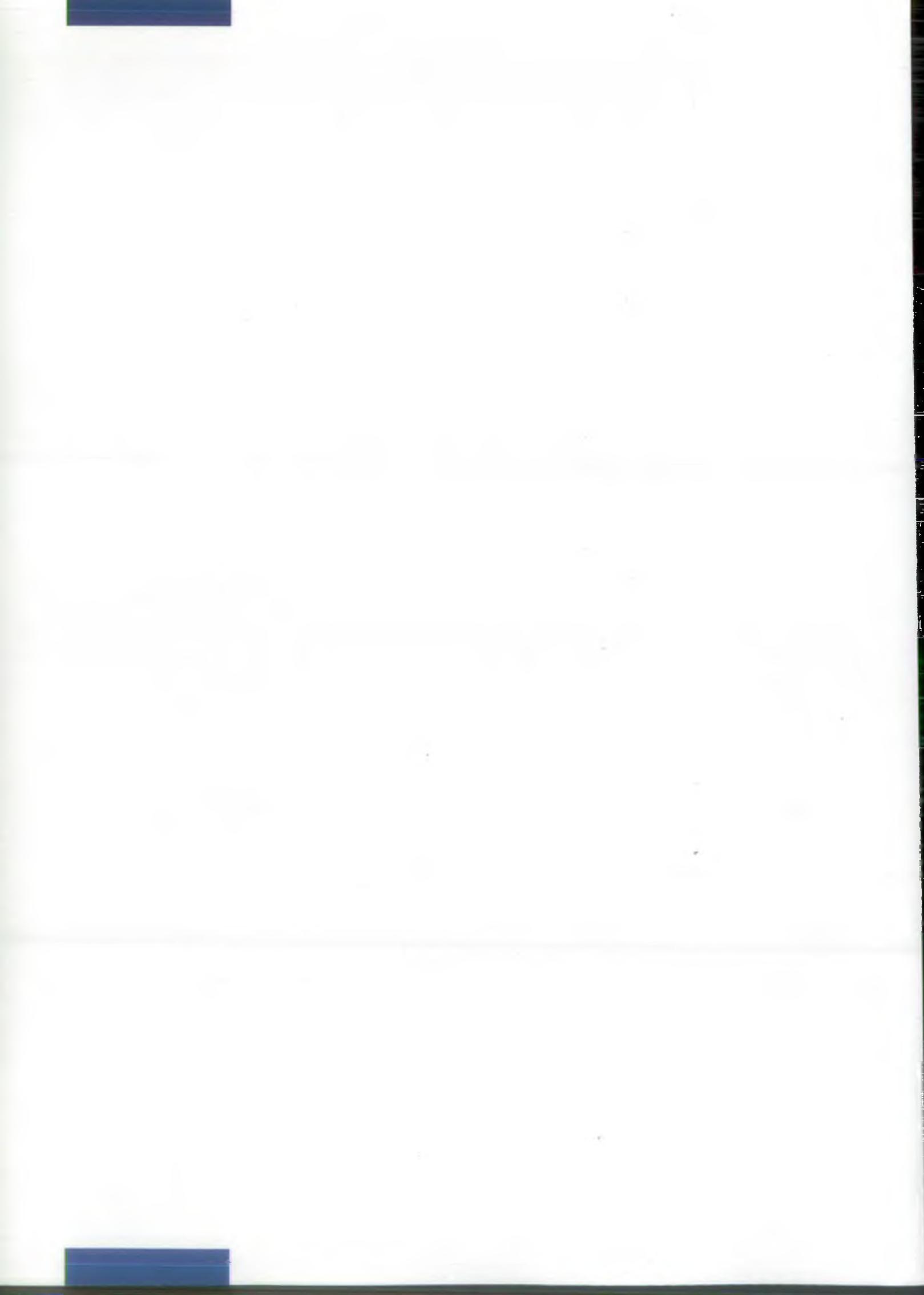
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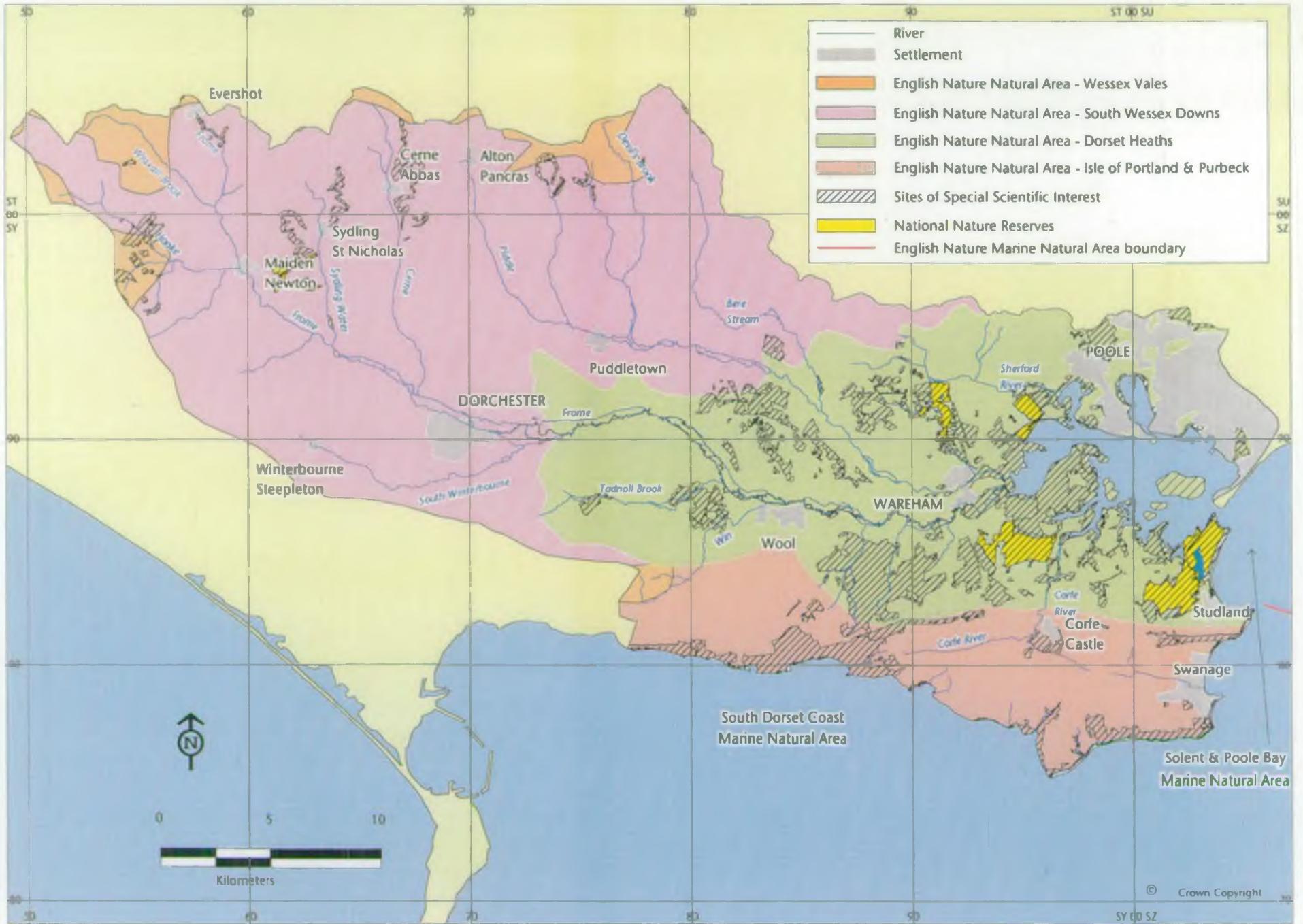
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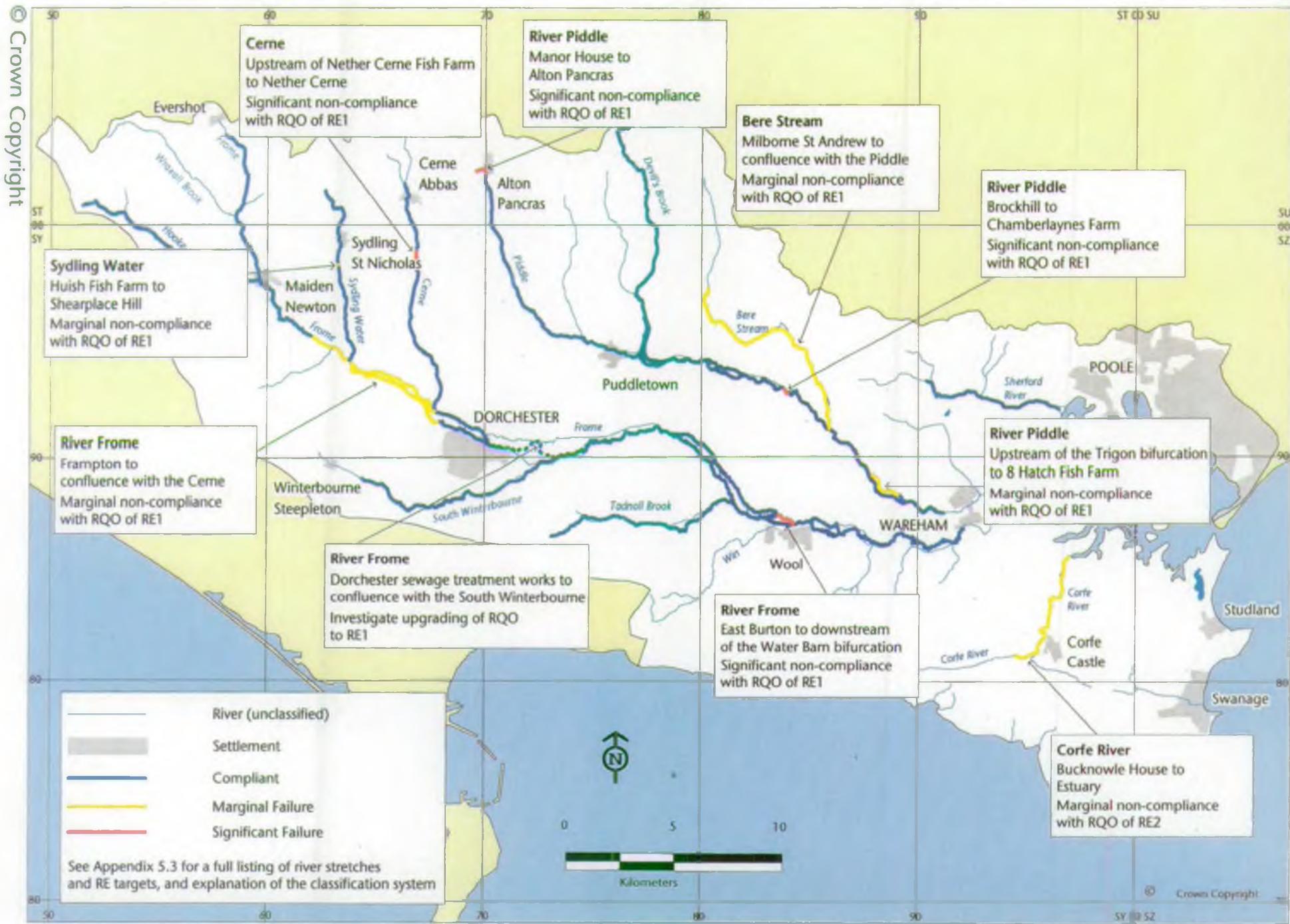








Map 4 - 1998 Compliance with River Quality Objectives (River Ecosystem Classification)



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