

local environment agency plan

HAMPSHIRE AVON

CONSULTATION DRAFT

DECEMBER 1998



ENVIRONMENT
AGENCY

6A South West LEAPS (Box 1)



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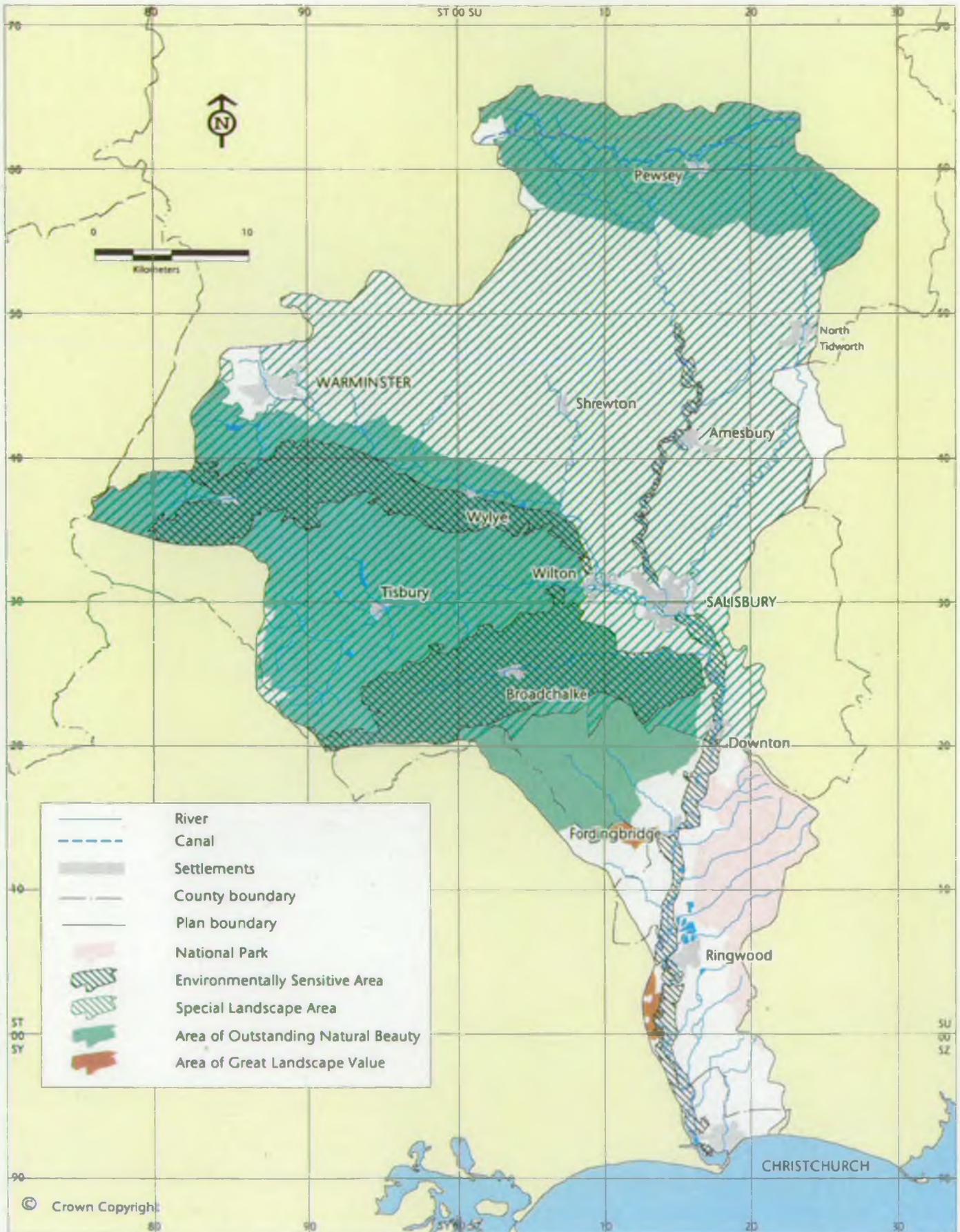
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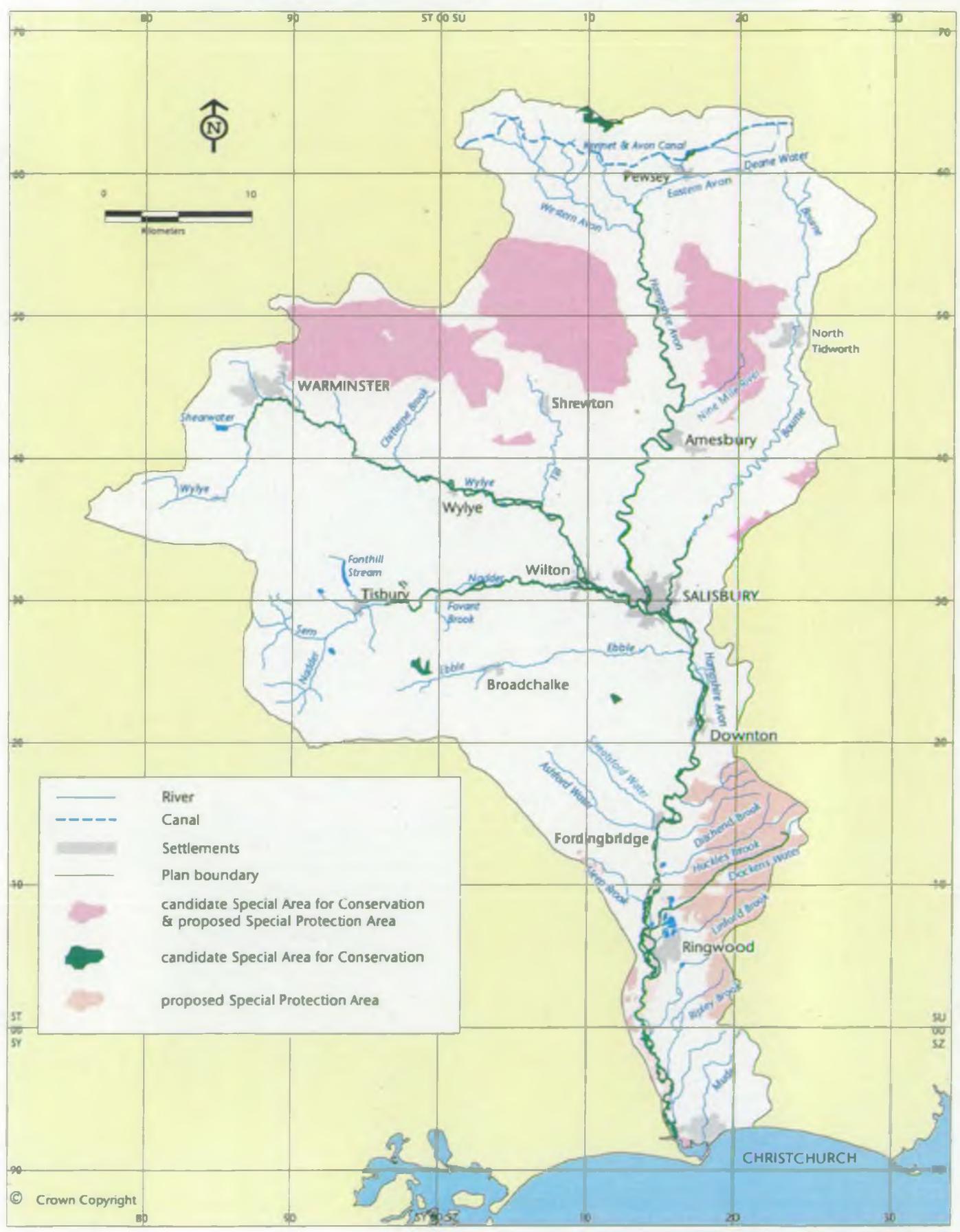
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maps

Map 2 - Designated Conservation Areas (Landscape)



Map 3 - Designated Conservation Areas (Habitats Directive)



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Map 1 - Hampshire Avon Plan Area and District and County Boundaries



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Foreword

In 1994 the former National Rivers Authority published a Catchment Management Plan for the Hampshire Avon and its tributaries. This was recognised as a major step forward in the management of river basins but it dealt, almost entirely, with water issues alone. Since then thinking has progressed very considerably. It is now recognised that the problems of land, air and water, particularly in the realm of pollution control, cannot be addressed individually. They are interdependent, each affecting the others. The Government's response to this wider thinking was to create the Environment Agency with the umbrella responsibility for all three.

This holistic approach is now reflected in the work of the Agency and particularly in the Local Environment Agency Plans which it is now preparing for all river catchment areas in England. This new Hampshire Avon plan builds on the work of the Catchment Management Plan but extends it to cover these wider considerations. It examines the environmental problems of the area and suggests the most important issues which should now be addressed. It is, I believe, vital reading for everyone concerned with this rather special piece of southern England.

Every river has its own characteristics but few can match the Avon for the extent and diversity of its landscape and wildlife. These are things which must be protected and enhanced and the Plan suggests how this can be done in a way which is complementary to the many varied interests related to the river. But it is the local people, from Warminster and Pewsey right down to Christchurch, who can best judge whether these ideas are sound. How will they affect you? Has some vital factor been overlooked? We need answers to questions of this sort if the final plan is to be firmly based.

So do please read this report, think about it and discuss it with your friends and colleagues and then give us your reactions. Only in this way can we be sure that we have the right answers to this very important part of Wessex.



Alan Swindall
Chairman, South Wessex Area Environment Group
of the Environment Agency

HAMPSHIRE AVON LOCAL ENVIRONMENT AGENCY PLAN CONSULTATION DRAFT

Your views

The Hampshire Avon is the third Local Environment Agency Plan (LEAP) produced by the South Wessex Area of the Environment Agency.

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?
- Have we identified all the options for solutions?
- Have you any comments on the issues and options listed?
- Do you have any other information or views that you wish to bring to our attention?

This is your opportunity to influence our future plans.

We look forward to hearing from you.



Howard Davidson
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Please send your comments by **31 March 1999**, preferably in writing, to:

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Published December 1998

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1. Introduction

1.1 The Environment Agency

Our Vision is:

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

Our aims:

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

We are required and guided by Government to use our 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 recognition of the need to take a more integrated and longer-term view of environmental management at a national level. The Agency therefore has to reflect this in the way it works and in the **decisions** it makes.

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

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.

1.2 Local Environment Agency Plans

For our part we are committed to a programme of producing 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 third LEAP to be produced by the South Wessex area and replaces the existing Hampshire Avon Catchment Management Plan (CMP) Action Plan published by the National Rivers Authority (NRA) in 1994 and the three subsequent annual reviews.

1.2.1 LEAP Consultation Draft

The publication of the Hampshire Avon 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.

At the end of the consultation period we will produce a Statement on Public Consultation which will give the results of the process.

1.2.2 LEAP Plan

The final LEAP will take into account the results of consultation and agreed 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 additional actions needed to maintain progress in the light of 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 Final 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.

2. Description of the plan area

The area covered by this plan comprises the entire catchment of the Hampshire Avon and all its tributaries (Map 1) with a geographical area of some 1760 km². Towards the coast the river meets the Dorset Stour to form Christchurch Harbour which has an area of approximately 2 km². We published a LEAP for the Dorset Stour in 1998. The River Mude also drains to the Harbour.

The eastern and western arms of the Avon rise on the Chalk and the Greensand of the Vale of Pewsey, meeting at Scales Bridge 2 km north of UpAvon. From here the main Avon flows for some 95 km to the sea at Christchurch; the fall over its entire course is approximately 140 m.

Together with two of its tributaries, the Bourne and the Wylde, the Avon drains Salisbury Plain. The River Nadder, which is joined by the Wylde at Wilton, drains the escarpment of the South Wiltshire Downs and the Kimmeridge Clay of the Wardour Vale. The River Ebble and Ashford Water both drain the South Wiltshire Downs and join the Avon just downstream of Salisbury and Fordingbridge respectively. Below Fordingbridge a number of significant streams drain from the New Forest.

The other significant waterway is the Kennet and Avon Canal, lying approximately east-west across the head of the catchment and is chiefly the responsibility of the British Waterways Board.

Despite its name the Hampshire Avon in fact lies within three counties; Wiltshire, Dorset and Hampshire. These County Planning Authorities are responsible for strategic development, waste and minerals planning. The District Councils responsible for local planning are Kennet, West Wiltshire, Salisbury, New Forest, Test Valley, East Dorset and Christchurch Borough (Map 1).

2.1 Settlements and commerce

The area is dominated in the north by the activities of the military on and around Salisbury Plain. The market town of Amesbury is situated towards the north end of the Avon Valley, close to Stonehenge and on the edge of Salisbury Plain. To the east of the Plain is Warminster which is the headquarters of various military activities, including the workshops of the Royal Electrical and Mechanical Engineers and the School of Infantry.

To the north of the area, and close to the Kennet and Avon Canal, is Pewsey. The town was developed as the commercial centre for some of the richest farming in England. Today it is an unspoilt rural market town famous for the White Horse that overlooks it.

Important commercial and residential areas are concentrated in the south of the area around the city of Salisbury, Ringwood and Christchurch. Salisbury with its commercial development and flourishing tourism is an important employment centre for the area. Further down the Avon Valley is the residential town of Fordingbridge and the market town of Ringwood. The harbour town of Christchurch is an important tourist and recreational centre.

2.2 Landscape character

The vast majority of the area is covered by landscape or agri-environmental designations including: the Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty (AONB), the North Wessex Downs AONB, the South Wessex Downs Environmentally Sensitive Area (ESA), the Avon Valley ESA and part of the New Forest national park. The remainder of the area is recognised as part of the Avon Area of Great Landscape Value (AGLV), part of the Woodlands (Cranborne Chase) AGLV and the Salisbury Plain Special Landscape Area within local plans (Map 2). The

rivers Nadder, Wylde and upper Avon fall within the Habitats Scheme (water fringe option), a pilot agri-environment scheme which aims to support more traditional forms of agriculture and a pastoral landscape along these river valleys.

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

2.2.1 Salisbury Plain and West Wiltshire Downs

The majority of the upper area is in this character area. The dominant features are the rolling chalklands, the steep escarpments and the attractive sheltered valleys of chalk rivers flowing southwards and eastwards to Salisbury. Much of the Plain is a vast rolling landscape of arable fields and unimproved grassland punctuated only by small hilltop woodlands of beech and conifer. Apart from the intensive farming, the main influence on the landscape is military activity.

Cutting through the landscape are the more intimate landscapes of the Wylde, Avon and Bourne valleys. Unimproved chalk grassland and woodland is found on the steeper slopes and there are abundant willows and alders along the watercourses. Abandoned water meadows are characteristic of all the valleys. The valleys lead to Salisbury where an area of meadows along the Avon provides the setting for the ancient centre of Salisbury. This character continues along the Nadder to Wilton, which is dominated by Wilton House and the surrounding parkland. Along these valleys tree cover increases around the villages and alongside streams and rivers. Here, too, it is mainly pasture, but arable land extends down the valleys on the more gentle gradients.

Woodland is common along the scarp above the Wylde valley, along the Great Ridge and on the steepest parts of the northern scarp. In these areas as the landform becomes more irregular, arable landcover changes to pasture and smaller irregular fields with patches of scrub on the steepest places.

2.2.2 Dorset Downs and Cranborne Chase

To the northern edge of this character area there are scarps above the Nadder and Ebble Valleys, which towards Salisbury have been sculptured into a series of north-facing bowls. Remnants of the ancient hunting ground Cranborne Chase can also be recognised; characterised by woodlands, clumps and copses containing ancient hazel coppice and by enclosed areas of arable pasture and parkland.

2.2.3 New Forest

The lower plan area falls within this character area. The valley of the Avon is flat-bottomed and contained by the landform rising up to the New Forest plateau to the east and the Dorset Heaths to the West. On the floodplain are low-lying pastures and groups of large water bodies where sand and gravels have been extracted. In places these fields and lakes have a rich riverside vegetation of willows and scrubs but on the drier stretches there are open arable fields with low hedges. The valley contrasts strongly with the free-draining, sandy, heather-covered hills, which are visible to the east.

The urban fringe extends along the coastal plain to the south-west; towns front onto the wide sweep of shingle beach running from the spit at Keyhaven to Christchurch.

2.3 Nature Conservation

The area contains sites of regional, national and international importance for wildlife. A range of habitats support a variety of species, many of which now have restricted distributions. Several formal designations apply to parts of the area; these relate to nature conservation, landscape and heritage.

The EC Habitats Directive seeks to protect habitats and species of European importance by designating Special Areas for Conservation (SACs). There are nine candidate sites in the area including the River Avon system (Map 3). Five of these sites are also proposed

Special Protection Areas (SPAs) under the EC Birds Directive which seeks to protect wild birds and their habitats. One further site, the Avon Valley (Bickton to Christchurch), is also a Special Protection Area (Map 3). All these sites are existing Sites of Special Scientific Interest (SSSI) which are statutory sites of national conservation importance; a number of other areas are also covered by this designation (Map 4). The Avon Valley (Bickton to Christchurch) and the New Forest are also RAMSAR sites designated for their internationally important wetland status (Map 4).

English Nature have identified 120 terrestrial and marine Natural Areas in England defined by their wildlife, habitats, species and physical attributes. They provide a framework with which to focus efforts and resources on nature conservation priorities but are not formal designations. Two Natural Areas are of interest to this plan, the *South Wessex Downs* (upper area) and the *New Forest* (lower area) and their 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 which 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 New Forest Natural Area contains probably the most important concentration of rare, scarce and locally distributed species in the UK, including the richest woodland lichen flora in lowland Europe, the nationally rare sand lizard and smooth snake and internationally important breeding bird populations including the largest number of breeding Dartford Warblers in the UK. Streams draining the New Forest and ponds within the Forest also show a rich plant diversity and aquatic fauna including a population of the internationally rare and threatened Southern damselfly.

The River Avon's range of water chemistry supports a very rich aquatic flora and fauna including important examples of floating water-crowfoot (*Ranunculus*) vegetation and several nationally rare invertebrate species. Additionally it is important for internationally threatened species such as the Atlantic salmon and the bullhead and internationally important species such as the otter are also present.

Although undergoing decline the floodplain grassland of the Avon is still nationally important for breeding wading birds and internationally important for wintering wildfowl. The flora of the Avon Valley is also rich, particularly that associated with the gravel valley terraces and areas of wind blown sand. Towards the coast, sheltered brackish mudflats within Christchurch Harbour are of international importance to nature conservation, supporting a rich flora including extensive beds of eel grass.

2.4

Land use

Approximately 75% of the land in this plan area is farmed, with cereal, and cattle and sheep farming as the predominant activities. Set-aside land, on which agricultural activity is severely limited, has increased from 0 ha in 1986 to 7945 ha by 1996.

	Area (ha)	%
Grassland	41025	31.6
Rough grazing	12270	9.5
Crops & fallow	61744	47.6
Farm woodland	3552	2.7
Other land	3191	2.5
Set-aside	7945	6.1

This information was taken from census statistics provided by the Farming & Rural Conservation Agency (FRCA). The data are derived 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 Ringwood area. The material extracted is used as aggregate in the construction industry. There are also a small number of chalk and chalk/sandstone quarries in the vicinity of Salisbury. There is also a limited amount of light industry, mainly associated with industrial estates, located both in urban and rural areas.

2.5 Archaeology

The area is also of high archaeological and historical importance containing some of the richest concentrations of prehistoric and Romano-British sites in southern Britain. There are numerous Scheduled Ancient Monuments (SAM) including burial mounds, barrows, Iron Age hillforts, deserted Saxon and medieval settlements, and historic trackways and field systems. Stonehenge is a World Heritage Site. The majority of SAMs are confined to the chalk plateau areas, with relatively few in the river valleys although four bridges have been designated: Milford Hill Bridge (Bourne), old Harham Bridge (Avon), Fordingbridge Bridge (Avon) and Christchurch Town Bridge (Avon).

2.6 Geology

The upper plan area, almost as far south as Fordingbridge is dominated by the Chalk which supplies water to feed the upper catchment tributaries. The Chalk is underlain by the Greensand, which is exposed in the Vale of Pewsey, the valley of the upper Wylfe south of Warminster and parts of the valley of the upper Nadder. A succession of strata is exposed in the upper Nadder valley including Weald Clay and Purbeck and Portland limestones.

Just to the north of Fordingbridge the Avon flows over narrow outcrops of Reading Bed sands and gravels and London Clay before continuing to the sea at Christchurch over Barton, Bracklesham and Bagshot Beds which are acidic clays, sands, silts and gravels. Extensive terrace and valley gravels, together with some alluvium, form a relatively thin cover in the main valley bottoms.

2.7 Hydrogeology

The Chalk and the upper Greensand are classified as major aquifers. 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 large 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 Wylfe and in the vicinity of Salisbury.

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 abstractions, if any. This is reflected by the greater significance of surface water abstractions in the lower plan area.

2.8 Rainfall

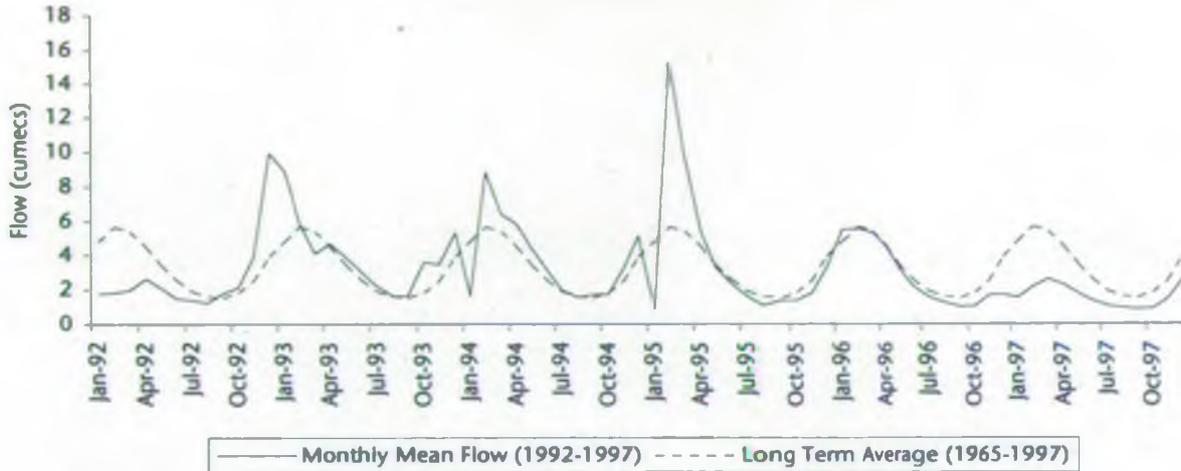
Rainfall is currently measured within the area at 25 Meteorological Office approved daily gauges. There are also four telemetry rain-gauges, which record rainfall intensity.

The rainfall distribution in the plan area shows a pattern prevailing in the British Isles; the highest totals tend to fall in the south and west of the catchment, whilst the lowest totals are generally experienced in the north-east. Annual average rainfall totals (*Meteorological Office Long Term Average 1969 to 1990*) range from 925mm and 880mm at the heads of the Wylfe and Nadder respectively, to 750mm at the heads of the Eastern Avon and Bourne. The 785mm average quoted for Christchurch Harbour shows the influence of coastal precipitation on the plan area.

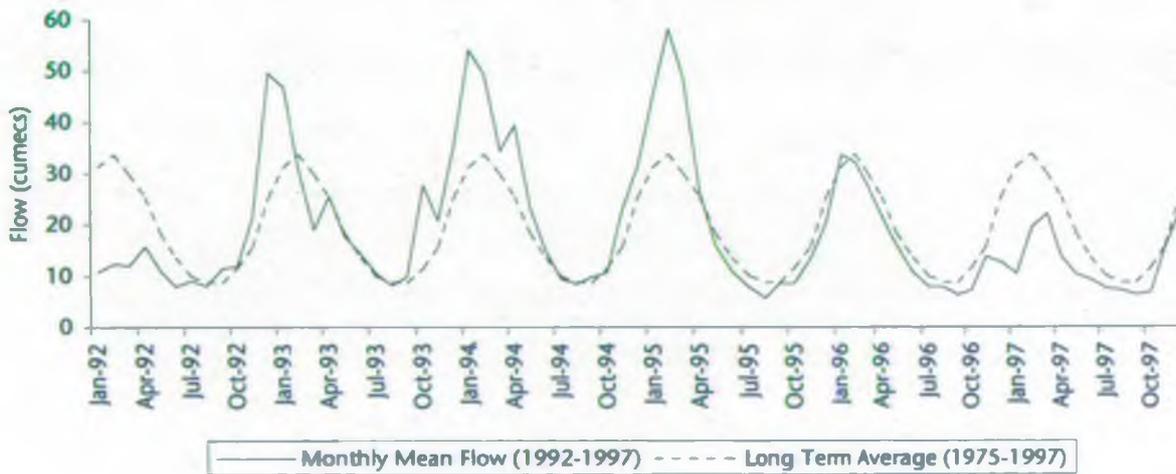
2.9 Riverflow

River flow is continuously measured at 14 gauging stations in this area; river levels are recorded at a further three locations. Groundwater levels are monitored manually at 52 sites; one site, Tilshead, is also monitored continuously.

River Avon at Amesbury Gauging Station



River Avon at Knapp Mill Gauging Station



3. Issues and proposed actions

We have set out in *An Environmental Strategy for the Millennium and Beyond* (Environment Agency, 1997) our principal and immediate concerns that need to be addressed by the Agency working alone, and in collaboration with others:

- managing our water resources
- managing our freshwater fisheries
- enhancing biodiversity
- conserving the land
- managing waste
- delivering integrated river-basin management
- regulating major industries
- improving air quality
- addressing climate change

As a first step to delivering this strategy at a local level we have raised a number of issues and proposed actions to help achieve environmental improvements. These now need to be consulted on. The proposed action tables show the following information:

- organisations who may implement the proposed activity
- a timetable for each activity
- an estimate of the cost to us, where available (tbd indicates costs to be determined)
- the financial years (April-March) in which the work will be done

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.

A key example of this will be the implementation of the EC Habitats Directive which has major implications for the South Wessex area, due to the designation of a significant number of sites (SACs and SPAs), their extent and high dependence on the aquatic habitat. The formal designation of sites began in 1998, and requires the assessment of the environmental impact of the many activities of the Agency on those sites. Details of sites and Agency responsibilities can be found in section 3.6.1; the implications for consenting functions (e.g. water resources, water quality and waste licencing) and flood defence operations will need to be fully assessed between now and 2004.

Further information on the nine concerns can be found in *An Environmental Strategy for the Millennium and Beyond* (Environment Agency, 1997) available from local Agency offices or on our Internet site at <http://www.environment-agency.gov.uk>. Other Agency leaflets which may be of interest include: *1999/2000 corporate plan summary*, *1997-1998 annual review*, and *regional review and forward look-south west*.

3.1 Managing our water resources

The rock underlying much of the upper area contains large volumes of high quality water, providing a source for watercourses and for a variety of uses including a domestic water supply, 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.

The water-bearing rocks supporting groundwater abstractions in the upper area, mainly for public water supply (*approximately 45% of total annual licenced abstraction in the upper plan area*), are replenished by rainfall primarily in the winter months when the amount of water lost from the evaporative processes is at a minimum. Here, the levels of groundwaters and surface waters are intimately linked, with groundwater serving as the water supply for surface waters, particularly chalk streams. Abstraction of water can contribute to the risk of unacceptably low flows in rivers, and the drying out of associated wetlands. Such concerns are being progressively examined.

Wessex Water Services Limited (WWSL) and Bournemouth and West Hampshire Water Company (BWHWC) currently meet the majority of demand for public water supply from a number of sources, dominated by groundwater in the upper area and three direct river abstractions south of Salisbury. Cholderton and District Water Company supply approximately 2000 people in the Cholderton area.

3.1.1 Securing future public water supplies

We are unable to identify public water supply demands on a LEAP area basis and therefore the precise impact of new development on water resources in the plan area is difficult to predict. Company supply zones cover a wider area and in addition water can be imported from or exported to other zones. At present the Agency is debating nationally its role in advising local planning authorities on this matter. Currently there appears to be adequate developed resources to meet the demands indicated within the local plan periods. However, increased house building may mean advancing the prospect of new water resource developments and this will be a highly sensitive matter given the nationally and internationally important habitats in the plan area (see Sections 3.3 and 3.6.1).

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 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.

The Office of Water Services (OFWAT) current periodic review requires 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 the Agency required the water companies to complete draft water resource plans by summer 1998. These have been received and work is ongoing to complete the final plans by April 1999 (see Section 4.3).

Actions	Action By	Cost to Agency (£)	Financial Year			
			98	99	00	01 02
1a Revise the Regional Water Resources Development Strategy based on information received in the companies' water resources plans	Agency	tbd	●	●		
1b Supply information on demand management and water saving measures in conjunction with the National Waste Survey	Agency	tbd	●	●		

In *Tomorrow's Water* (South West Region Water Resources Development Strategy) the former NRA looked to the provision of new off-stream storage reservoirs, using exhausted mineral workings, as a major opportunity to meet increasing water demands. Given the constraints on new mineral permissions in the Avon valley, the Ibsley complex of gravel pits (Blashford Lakes) appears now to be the only available practical option for a reasonably early development. Reservoir storage is essential if adequate safeguards are to be made for river low flows against the alternative of a continuous direct abstraction from the river. WWSL will need a source to replace the licensed quantity sacrificed from Wylfe groundwater in the event that the Agency's proposals for reduced abstractions there are approved by the Department of the Environment, Transport and the Regions (DETR). The company may need additional water resources to meet future demands, as may BWHWC. BWHWC may also need reservoir storage for the continuing security of its quality and quantity of supplies. Both companies have land and infrastructure interests in the Ibsley area and would do well to reach an early agreement over a joint development scheme. The Agency understands from both companies that a mutually satisfactory agreement is within reach. However, the Agency would suggest that its future status and value will be contingent upon the Agency's decision on how the reservoirs might benefit from environmentally acceptable modified river abstraction licences.

3.1.2 Water resource investigations on the Hampshire Avon

In the early 1990's a broad review of the effect of abstraction on river flow and groundwater levels in the upper Avon was undertaken. A preliminary assessment was also made of factors influencing the aquatic environment and of the local history of ecology and fisheries. The broad conclusion from this work was that public water supply groundwater abstractions did have a significant effect on dry season flows where sources were located in sensitive upper or winterbourne reaches. The River Wylfe was concluded to be the catchment in most need of more detailed study, the Bourne and Nine Mile River were also perceived as at risk from groundwater abstractions and were recommended for further detailed investigation. Elsewhere, river conditions in general may have been as much influenced by weather variations or changes in agricultural land use and practice.

The River Wylfe study used a groundwater model of the Wylfe catchment to help try and assess the impact of licensed groundwater abstractions. The results of this work indicated that a reduction in the volume of groundwater abstraction would significantly improve flows in the Wylfe, the Till and the Chitterne Brook. Work has also been undertaken to help identify environmentally acceptable flow criteria, notably PHABSIM studies and the angling quality survey (see Section 3.2.1).

Agency proposals for the environmental programme in the Asset Management Plan 3 (AMP3) Periodic Review (see Section 4.3) include a proposal for a reduction to the licensed abstractions in the River Wylfe catchment. This is targeted at the Chitterne borehole which has been demonstrated to have a serious effect on the Chitterne Brook and also the River Till. Other revisions to management practices in the Wylfe catchment are under discussion with WWSL with a view to improving conditions in the Deverills by greater use of the Codford borehole rather than the borehole at Brixton Deverill. These proposals for improvements in the River Wylfe have major financial implications and the Agency has anticipated the need for a site-specific benefit assessment which will be submitted to the DETR in autumn 1998.

The existing gauging station at Codford has been upgraded to facilitate investigations in the Chitterne Brook and new river flow gauges at Stockton Park and Nunton Bridge now provide continuous data for the middle Wylfe and the River Ebble respectively. No further major capital works are planned, but consideration is being given to the construction of a flow gauging station on the River Till pending the results of the stream augmentation trials in 1998.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
1c Agree water management practices which will improve conditions in the Deverills	Agency WWSL	tbd	●	●	●		
1d Trial stream support on the River Till	Agency WWSL	tbd		●	●		
1e Consider construction of a flow gauging station on the River Till	Agency	tbd	●	●	●		
1f Monitor environmental changes/benefits from amended arrangements in the upper Wylde	Agency	tbd				→	

In the case of the River Bourne and Nine Mile River, the Agency has signalled its intention within AMP3 to undertake similar investigations to those on the River Wylde. At this stage we are unable to demand action on modifications to abstraction licences as we do not have the evidence to demonstrate environmental impacts attributable to these licences. The intention is to draw up a project plan this year to carry out an integrated study of these two streams. No new abstraction licences are likely to be granted in these catchments beyond a fixed time limit of five years, by which time the investigations, conclusions and future water resources management plans would be completed.

The application by Thames Water Utilities Ltd to supply Tidworth Camp in the Bourne catchment as part of a Private Finance Initiative has recently been granted. The principles on which the Agency has granted a licence accord with the reasonable need to supply the community dependent on existing sources, whilst requiring the efficient use of water. Granting a time-limited licence enables a review following the planned investigation of the Bourne and Nine Mile River.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
1g Assess the environmental impacts of abstractions from the Bourne and Nine Mile River catchments and formulate any necessary practical mitigation measures	Agency	100k	●	●	●		

The Fonthill Brook will also be investigated following a recommendation that should abstraction from Fonthill Bishop pumping station increase, then the impact of abstraction on the Fonthill Brook needs to be reconsidered.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
1h Investigate the environmental impacts of abstractions in the Fonthill Brook catchment. Existing monitoring will be reviewed to see if it is possible to assess impacts.	Agency	20k	●	●	●		

The abstraction at Knapp Mill by BWHWC has also been identified by the Agency as a matter to be investigated during the AMP3 period. The Agency's grounds for this relate to the findings of a report by Dr David Solomon on the flow needs of migratory salmon. Inevitably any significant change to the present arrangements would appear either to involve the provision of a major reservoir or massive reductions in peak daily demands. Neither option appears feasible within the medium term but all possibilities will need to be entertained in future discussions with the company (see Sections 3.2.2 and 3.6.1).

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
1i Consideration of potential for Operational Agreement and works to facilitate salmon migration	Agency BWHWC	10k		●			

3.1.3 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.

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.

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. 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.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
1j Improve collection and reporting of groundwater data	Agency	tbd		●	→		

The amount of nitrate in surface and groundwaters is of concern as levels in many places are approaching the limit for drinking water quality that will require expensive treatment of private and public supplies. The major source of nitrate is 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, under the guidelines the land draining to these must be designated as *Nitrate Vulnerable Zones (NVZ)*. Action plans must be established to reduce existing nitrate pollution and prevent further pollution. The Agency will be responsible for enforcing the regulations. Codes of Good Agricultural Practice will 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.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
1k Contribute to the four yearly review process of NVZs (2001)	Agency	tbd			●	●	

3.2 Managing our freshwater fisheries

The Avon is well known for its salmon, migratory trout and brown trout fisheries although at present salmon catches are at a low level. The best of the salmon rod fishing takes place between Christchurch and Fordingbridge, whilst the main migratory trout fishery is located at Christchurch. The upper Avon and tributaries are preserved as brown trout fisheries. There are also several stillwater put and take trout fisheries located within the plan area. Several large on-river trout farms have been developed over the last two decades.

The Avon is also nationally renowned by anglers for its specimen coarse fish, particularly barbel, roach, chub and dace. The best coarse fishing is found between Christchurch and Salisbury, whilst quality grayling fishing is to be had on the upper Avon and Wylde, Nadder and Bourne. Stillwater coarse fishing takes place at several disused gravel pits located throughout the area.

Licensed netting for salmon and migratory trout takes place at the seaward end of Christchurch Harbour using draft or seine nets. There is some commercial fishing for eels using fixed eel traps at various locations on the lower Avon and there is some ring netting for mullet in the Harbour. Within the confines of Christchurch Harbour and an area of the sea outside the harbour, the Agency has the powers of a local Sea Fisheries Committee. A fuller description of the sea fisheries along this stretch of coast can be found in the *Dorset Stour LEAP Consultation Report* (1997) available from the Agency's Blandford Office.

3.2.1 Decline of the brown trout fishery

In recent years anglers have reported deteriorating river conditions in the Avon and its tributaries. This is possibly due to a number of factors including low flows with recent drought periods having compounded the effects of abstraction on some rivers. On the Wylde in particular, groundwater abstraction may have had a significant impact on the habitat for takeable trout and angling conditions. The River Bourne may also be suffering from the impacts of abstraction (see Section 3.1.2). Runoff of silt from agricultural land and other sources is also believed to be an important factor (see Section 3.4.3).

Ranunculus (water crowfoot) is a most important element of the chalk stream environment, providing substrate and food for invertebrates, maintaining stream depth and providing cover for fish. Low stream flows have tended to interrupt the normal growth cycle of *Ranunculus* on the Wylde and elsewhere, but more normal flows in recent years have led to some degree of recovery. Grazing by large flocks of un-mated swans can have a major impact on *Ranunculus* and is particularly problematic on the River Wylde. This is the subject of a current Ministry of Agriculture, Fisheries & Food (MAFF) study that includes monitoring the number of swans and migration in and out of the area. On-going Agency monitoring of the impact on *Ranunculus* is complementing this study.

Work is currently underway on proposals for a national research and development (R&D) project on chalk stream habitat, which will include *Ranunculus* as a key issue in terms of its current distribution and management. The South Wessex area will have a key role to play in the project which is due to start in 1999. The R&D project will also complement work with regard to the EC Habitats Directive (see Section 3.6.1) under which the floating *Ranunculus* community is a qualifying interest. The Agency has also been named the contact point for chalk river habitat under the UK Biodiversity Action Plan (see Section 3.3).

When completed the Wylde PHABSIM study will be used to assess the impact of abstraction and if necessary make recommendations for the flows necessary to protect salmonid habitat. A study into the relationship between flow and angling quality on the Wylde is ongoing. The results of this investigation will be considered in any future flow setting exercise.

The poor recruitment success of brown trout can probably be attributed to the deterioration in the spawning and incubation habitat in the main river, although a deterioration in genetic integrity and fitness due to long term stocking from hatcheries, is likely to have contributed. The condition of the gravels may have deteriorated with low flows and silt build-up, while factors such as water abstraction, reduced weed growth and enhanced erosion of the land surface are likely to have contributed to a deterioration of spawning conditions (see Sections 3.1.2 and 3.4.3). Also the value of winterborne streams in the upper Avon as trout spawning and nursery areas has been significantly reduced by abstraction.

An investigation of wild trout breeding success by the Game Conservancy Trust is ongoing as is gravel improvement work undertaken in co-operation with fishery keepers. We will make gravel cleaning equipment available for loan.

River restoration schemes which should significantly enhance the habitat for both fisheries and other wildlife, particularly where rivers have been historically degraded by land drainage schemes of the 1960's and 1970's or extensively damaged by livestock, are continuing to be undertaken following the success of projects during 1997. Careful evaluation is required to balance the various wildlife needs to ensure schemes will improve the conservation value and support the special interest species of the Avon. This year a number of projects are planned for sites on the Nadder (*Barford*), Wylde (*Stockton & Great Wishford*), Upper Avon (*Figheldean, Woodford & Durnford*) and the lower Avon (*Hale*). We are looking to develop partnerships for similar schemes in the future, building on those already developed with Salisbury District Council and Local Agenda 21 groups in that area.

Riparian owners and anglers in the upper catchment area have commented on an apparent reduction in some upwing flies in recent years. The Agency commissioned the Institute of Freshwater Ecology to produce a scoping study to evaluate the factors responsible for population changes. The report has been widely distributed to interested individuals concerned about the mayfly problems. The Agency have also completed a macroinvertebrate study of the upper Avon comparing current population diversity with data from historical surveys and concluded that significant changes were not evident. Efforts will next focus on attempting to obtain historical information from anglers on upwing flies.

Actions	Action By	Cost to Agency (£)	Financial Year					
			98	99	00	01	02	
2a Investigation of wild trout breeding success	GCT		●					
2b Maintain and loan gravel cleaning gear to fisheries interests	Agency	0.5k	●	●	●	●	●	
2c Flow setting on the Wylde. <i>The cost refers to PHABSIM work, further staff costs will be incurred when the results are analysed</i>	Agency	55k	●					
2d Carry out angling quality survey	Agency Others	25k	●	●				
2e Chalk stream habitat improvement (see Action 6e). <i>Further work as funding allows</i>	Agency Others	56k	●					
2f Undertake survey of anglers to obtain historical information on upwing flies	Agency	1k	●					
2g Assist in the preparation of proposals for national R&D project on chalk stream habitat	Agency	tbd	●	●				
2h Continue to work with all interest groups to develop and implement strategies to reduce impact of swans	Agency EN MAFF Owners	tbd	→					

The majority of trout fisheries in the upper Avon and tributaries have been supported by stocking for many years. Large numbers of hatchery-reared fish are introduced each spring, often including individuals larger than those which a chalkstream would naturally produce. A small number of fisheries on the Nadder stock with rainbow trout, which are a territorial exotic species.

In many cases the fish introduced are inappropriate in terms of their size, genetic make-up and breeding capability. There is significant disquiet about the size of fish currently being stocked in some fisheries. Where the stocking of trout is longstanding the impacts on other species and trout genetic integrity are probably irreversible. We will take account of the impacts of stocking where wild populations exist and we are attempting to stop the stocking of rainbow trout by persuasion, although with limited success. Over the next two years the Agency will be producing a national trout strategy and the future granting of consents for trout stocking will be guided by this policy and by the Conservation Strategy being produced by the Agency and English Nature for the river SSSI (see Section 3.6.1).

3.2.2 Decline in catches of salmon

Salmon catches on the Avon over the past seven years have been at their lowest ever level. Egg deposition levels have been significantly below the threshold Minimum Biologically Acceptable Level (i.e. that level of spawning which maximises the sustainable catch) for nine years (1989-1997 inc.) and is likely to be so in 1998.

In response the Agency produced the *Hampshire Avon Salmon Action Plan* (1997) which highlights what the Agency considers to be the major constraints acting on the salmon population. Further information on the Salmon Action Plan is available from the Agency's Blandford Office. The proposed actions, which if taken forward, should enable the wild salmon stock of the Avon to grow to a minimum level at which it can play its proper part in the river's ecology (see Section 3.6.1) and the local economy. This will also be dependent on reasonable normal climatic and oceanic conditions over the next few years.

The Agency will also provide microtagging of all fish released by the Wessex Salmon Association as part of its artificial propagation trials.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
2i Improve understanding of mechanisms controlling chalk stream salmon populations to allow more efficient management. R&D project <i>Decline in Chalk Stream Salmon, jointly with Southern Region</i>	Agency MAFF · IFE	10k pa	●	●	●	●	●
2j Improve monitoring of salmon stocks. <i>Continue the existing monitoring programme</i> <i>Count salmon currently by-passing resistivity counters at Knapp Mill (improved approach now being developed)</i> <i>Count smolts. Feasibility study carried out, on hold pending further development</i> <i>Increase frequency of juvenile monitoring on Nadder from every five years to annually</i>	Agency	25k pa	●	●	●	●	●
	Agency	3k pa	●	●	●	●	●
	Agency (if sponsored)	4k pa		●	●	●	●
2k Vary exploitation levels, ensuring increased escapement from nets and rods. <i>Introduce byelaws which will cut rod and net exploitation of 2 Sea Winter salmon</i> <i>Maintaining catch and release and/or transport past the Harbour until spawning levels are satisfactory</i> <i>Continue to promote catch and release from rods until spawning levels are satisfactory</i>	Agency	1k pa	●				
	Agency WSA (Tesco)	4k pa	●	●	●	●	●
	Agency	2k pa	●	●	●	●	●
2l Improve spawning medium. <i>Existing and enhanced level of gravel cleaning</i> <i>Evaluation and development of gravel cleaning (superseded by Agency scheme for improved approach)</i> <i>Continue Agency's Landcare project (see Section 3.4.3)</i> <i>Promote fencing out of stock to reduce ingress of silt where significant damage</i>	Agency	3.5k pa (+ 5k)	●	●	●	●	●
	Agency	2k pa	●	●	●	●	●
2m Improve migration conditions. <i>Ongoing work to ensure free passage of adults and smolts</i> <i>Improvement of migration conditions on the Avon</i> <i>Increase accessible spawning range (scoping study completed)</i>	Agency	4k pa	●	●	●	●	●
	Agency Sponsors	10k pa		●	●	●	●
	Sponsor	1k	●				
2n Optimise channel morphology for salmon life stages. <i>Continue to ensure that flood defence works do not reduce habitat quality and build in enhancements wherever possible (If R&D indicates it is worthwhile, habitat will be modified for the benefit of salmon)</i>	Agency	5k pa	●	●	●	●	●
2o Investigate why stretch between Downton and Fordingbridge is under-used by salmon. <i>Draft report indicates habitat rehabilitation initiatives may provide the necessary stimulus for improved spawning</i>	Agency	10k pa		●	●	●	●

3.2.3 Maintenance of the coarse fish population

In general coarse fishing is of a consistently high quality, however concern has been expressed about poor fishing and a lack of small fish between Downton and Burgate.

Factors cited in the past include:

- loss of nursery areas in water meadows
- loss of spawning and nursery habitat because of weed cutting practice in carrier streams and/or engineering works in the main river
- entrapment at fish farms
- predation of fry by escaped rainbow trout
- localised water quality problems

We undertake comprehensive surveys of Avon coarse fish populations in the river downstream of Salisbury on a regular basis. If and when anomalies are detected they are investigated. The results of the 1987 and 1991 surveys in this respect could possibly be explained by obstructions to coarse fish migration. If the 1997 survey, some of which is still being analysed, confirms these findings then further investigations will be initiated.

The Agency is also examining the benefits to all wildlife that can accrue from the manipulation of water levels (see Section 3.6.5), and within this framework we will seek to maximise the benefit to coarse fish populations. An assessment will also be made of the changes resulting from collaborative river rehabilitation initiatives undertaken elsewhere in the area (see Section 3.2.1).

In addition, we are concerned about the impact of fixed eel trap operation 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 have made recommendations to owners/operators that are aimed at minimising the impact of these activities on other species.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
2p Undertake coarse fish survey	Agency	20k					●
2q Eel trap inspections	Agency	0.5k	●	●			

There is concern about escapes of rainbow trout from fish farms and the possible effect these might have on wild fish populations, in particular coarse fish.

From January 1999 the Agency will be able to enforce legislation regarding the screening of fish farms and other water utilities. We will be ensuring that, in the case of fish farms, screens are in place, which should prevent the entrapment of migratory salmonids and some coarse fish, and prevent the escape of farmed fish.

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.

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 (BAP)* which produced a short-list of outline plans and targets for the 14 most threatened habitats and 116 most threatened species in the UK. In addition a middle and long-list, for which plans will be drawn up, have been produced. Of those habitats and species on the short-list, the Agency has been named as a contact point for chalk rivers habitats and for 12 species, six of which have been recorded in the area. As a contact point 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 habitats and species on the short-list in order to help ensure their future protection.

Work has also been ongoing 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. This contains 31 target-based action plans for some of the regions most threatened habitats and species. These spell out in clear terms what needs to be done, by whom, if biodiversity in the South West is to be conserved, and where possible, enhanced. These plans have resulted in over 150 actions that the Agency are responsible for helping to implement from the short-list.

UK BAP short-list found in area (Agency as contact point)

Key Habitats and species	Reason for inclusion/status	Potential threats	Associated actions
Chalk river habitats	UK BAP short-list	Changing water levels Abstraction Land use change Inappropriate management and channel bank works Pollution	3a
Water vole	UK BAP short-list South West BAP WCA (1981) The upper Avon and tributaries appear to be a stronghold; little survey information is available for the lower Avon Nationally the species is suffering from rapid decline	Loss and fragmentation of habitats and predation by feral mink Disturbance to riparian habitats Changing water levels	3b
Otter	UK BAP short-list Schedule 5b WCA (1981) Annex IIa & IVa EC Habitats Directive Appendix II Bern Convention Mainly limited to below Salisbury; some records from the upper tributaries Survey data indicates that the population may have significantly increased in recent years, but is low compared to pre-decline populations	Road casualties Current low population level Lack of suitable breeding and laying up sites Mink hunting with hounds, traps and guns	3c

Key Habitats and species	Reason for inclusion/status	Potential threats	Associated actions
White-clawed crayfish	Annex IIa Habitats Directive UK BAP short-list South West BAP Schedule 5 WCA (1981) Used to be widely distributed in the area, there may now only be one population remaining A 1998 survey found only one positive record even though most small tributaries were surveyed. In 1984 crayfish plague virtually wiped out populations of native crayfish	Introduction of non-native crayfish which carry the fatal fungal crayfish plague Competition for space and food by non-native crayfish Habitat modification Water quality (siltation)	3d
Depressed river mussel	UK BAP short-list Probably under-recorded in the Avon valley due to difficulties in identification, but no recent records	Ecology not clear but probably: Water quality Physical disturbance to the river bed Low numbers of host fish for larval stages	3e
Fine-lined pea mussel	UK BAP short-list Red Data Book (Three) Probably under recorded in the Avon. Some recent surveys have found live specimens	Species ecology unclear but possibly: Water quality Physical disturbance to the river bed	3f
Southern damselfly	Qualifying criteria for cSAC UK BAP short-list Annex IIa Habitats Directive Appendix II Bern Convention Red Data Book (Three) Recent surveys by the Hampshire Wildlife Trust revealed two or three populations in the area (New Forest)	Habitat modification by scrub encroachment or vegetation clearance at inappropriate times Water quality Reduction in water level through abstraction, drought, operations	3g

UK BAP (short, middle, long list) and/or South West BAP found in area

Key Habitats and species	Reason for inclusion/status	Potential threats	Associated actions
Coastal and floodplain grazing marsh	UK BAP short-list South West BAP Support internationally important populations of wintering wildfowl and breeding waders, both of which have declined in both size of population and range in the Avon Valley Also support rare and interesting plants and invertebrate populations	Reduction in the extent and period of winter flooding Changes in agricultural practices creating grassland swards unattractive to feeding wildfowl Other sites drawing birds away Decrease in pollarding management of hedgerow and riverside trees reducing the openness of enclosures Damage to nest sites through increased trampling by stock Loss of feeding micro-habitat and ditch infrastructure	3h
Reedbed	UK BAP short-list South West BAP Support rare and interesting birds and invertebrates	Water quality Water level reduction	3i

Key Habitats and species	Reason for inclusion/status	Potential threats	Associated actions
Fen	UK BAP short-list	Abstraction, operations, leading to drying out Water quality Habitat modification (scrub encroachment, inappropriate management)	3j
Saline lagoons	UK BAP short-list South West BAP SAC qualifying interest There are two sites within Christchurch Harbour considered as types of saline lagoon	Pollution, especially nutrient enrichment Natural succession and sediment movement Artificial water control Development, infilling, coastal defence	3k
Estuaries	UK BAP short-list South West BAP Christchurch Harbour is defined as an estuary	Dredging, sea defences Pollution Recreational pressures Sea level rise	3l
Standing openwater	South West BAP	Abstraction Pollution, nutrient enrichment Inappropriate management	3m
Urban	South West BAP		3n
Desmoulins whorl snail	UK BAP short-list SAC qualifying interest Annex IIa Habitats Directive Red Data Book (Three) Found in a number of wetland habitats adjacent to the Avon and tributaries	Changes to local hydrology Shading of habitat by scrub encroachment Changes in land use and intensification of farming practices Excessive cutting or trampling of river bank vegetation	3o
Black bog ant	UK BAP short-list Found in bog habitats alongside streams that drain to the Avon from the New Forest	Loss of bog habitat through drainage, agriculture and drought Natural succession Heavy grazing pressure Pollution of watercourses	3p
Great crested newt	Annex IIa and IVa Habitats Directive Appendix II Bern Convention Schedule 5 WCA (1981) Distribution unclear but declining	Loss of ponds through infilling and development pressures Pollution, fouling of ponds Lowering of groundwater levels	3q
Medicinal leech	UK BAP short-list Schedule 5 WCA (1981) Red Data Book (Three) The full extent of this species is not known, but it has been recorded in the New Forest area	Loss of suitable pond habitat	3r
Starlet sea anemone	UK BAP short-list Schedule 5 WCA (1981) Red Data Book (Three) Thought to be present in Christchurch Harbour	Pollution and drainage resulting in loss and damage to lagoon habitats Coastal defence works and associated filling Isolation of pools, giving rise to fragmented populations	3s

Key Habitats and species	Reason for inclusion/status	Potential threats	Associated actions
Salmon, brook and river lamprey, bullhead	SAC Qualifying interest UK BAP long-list (excludes bullheads)	See Sections 3.2.2 and 3.6.1	3t
Round-mouthed snail	UK BAP long-list Red Data Book (Two) Nationally rare. A recent survey recorded populations thought to be extinct since 1882, but probably under recorded in this area	Unknown	3u
Tentacled lagoon snail	UK BAP long-list Schedule 5 WCA (1981) Recent survey work has found that these are common in Christchurch Harbour	As estuaries	3v

There is crossover between some of the biodiversity species and those listed as qualifying interests for SAC designation (see Section 3.6.1). In these cases the BAPs are still followed as a lead for action. Some of the actions listed below refer to local county, regional or national plans which are available on request. The following actions are identified in the UK or South West Regional BAP which the Agency, along with partner organisations, has signed up to.

Actions	Action By	Cost to Agency (£)	Financial Year			
			98	99	00	01 02
3a Proposed action for chalk river habitats <i>Continue to participate in the Agency chalk stream Biodiversity working group taking BAP actions forward on the Avon. This will also influence the R&D projects discussed in section 3.2.1 and development of the Conservation Strategy (see Section 3.6.1)</i>	Agency	tbd	→			
3b Proposed action for the water vole <i>Continue to support the Dorset and Wiltshire County Biodiversity Projects to implement actions from the UK and South West BAPs</i>	Agency	tbd	→			
3c Proposed actions for the otter <i>As 3b</i> <i>Identify black spots for otter crossings and implement programme of road improvements/underpasses to provide safe access points when rivers are in flood</i> <i>Seek to determine water quality objectives for standing and running waters that will sustain otters</i> <i>Increase number of holt sites where appropriate on all flood defence schemes</i>	Agency	tbd	→			
	Agency	tbd	●	●		
	Agency	tbd	●	●	●	●
	Agency	tbd	→			
3d Proposed action for the white-clawed crayfish <i>Implement recommendations of the South Wessex BAP</i> <i>Ensure water quality objectives support existing and potential populations</i>	Agency	tbd	→			
	Agency	tbd	→			
3e Proposed actions for the Depressed river mussel <i>Support research project (in partnership) on the River Avon and review flood defence maintenance works in the light of research findings to safeguard populations</i> <i>Support survey of sites with recorded finds post 1950</i>	Agency	tbd	→			
	WWS					
	Agency	tbd	→			

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
3f Proposed actions for the fine-lined pea mussel <i>Ensure flood defence activities and water level management plans (see Section 3.6.5) take account of the species requirements</i> <i>Review flood defence maintenance works in the light of national research findings to safeguard populations</i>	Agency	tbd	→				
	Agency	tbd					
3g Proposed actions for the Southern damselfly <i>Ensure the hydrology of sites remains favourable</i> <i>Ensure future development, drainage, hydrological alterations do not affect sites</i> <i>Support national Ph.D project to research ecology and identify precise habitat requirements</i> <i>Following national guidelines assist with site management where appropriate</i>	Agency	tbd	→				
	Agency	tbd	→				
				●	●	●	
	Agency	tbd					→
3h Proposed actions for coastal and floodplain grazing marsh <i>Influence national and regional policies on flood defence, land use and water resources (by 2005)</i> <i>Secure the hydrological and conservation management on two trial sites via water level management plans (see Section 3.6.5) (by 2000)</i> <i>Review abstraction licences on trial sites (see Section 3.6.1)</i> <i>Audit to determine actual resource</i> <i>Prepare and implement survey and monitoring programs of key indicator communities on water level management plan areas (see Section 3.6.5)</i>	Agency	tbd					
	Agency	tbd					
	Agency	tbd					
	Agency Partners	4k	●				
	Agency Partners	tbd	●	●	●	●	●
3i Proposed actions for reedbed <i>Prepare and co-ordinate strategy for reedbed, requires sites to be identified (under the UK BAP, priority is given to the creation of new reedbed, especially in areas of mineral extraction. The Blashford lakes complex provides the best opportunity to fulfill this target in the Avon Valley)</i> <i>Define appropriate water quality standards and establish monitoring regime if appropriate</i>	Agency Partners	tbd		●			
	Agency	tbd					→
3j Proposed action for fen <i>Continue to support the Dorset and Wiltshire County Biodiversity Projects to implement actions from the UK BAP</i>	Agency Partners	tbd	→				
3k Proposed action for saline lagoons <i>Identify abstractions likely to be affecting lagoon habitats of conservation importance and resolve where necessary</i>	Agency	tbd	→				
3l Proposed actions for estuaries <i>Initiate a five year general quality assessment of macroinvertebrates</i> <i>Initiate a rolling program of marine surveys of estuaries</i> <i>Research and implement appropriate standards of water quality to maintain and improve diversity in estuaries (by 2010)</i> <i>Establish estuary-wide management plans with biodiversity targets</i>	Agency	tbd		●			
	Agency	tbd					→
	Agency	tbd					
	Agency Partners	tbd	→				
3m Proposed action for standing open water <i>Define water quality standards, monitor and enforce</i> <i>Review relevant abstraction licences (see Section 3.6.1, principally Blashford Lakes in this area)</i>	Agency	tbd	→				
	Agency	tbd	→				

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
3n Proposed actions for urban watercourses <i>Meet water quality objectives</i> <i>Encourage community action by supporting Salisbury Wildlife Project Officer, and inputting where requested to the Dorset Urban Biodiversity Project Officer and the Avon Community Project Officer</i>	Agency Agency	tbd tbd	→				
3o Proposed action for the Desmoulins whorl snail <i>Ensure flood defence activities and water level management plans (see Section 3.6.5) meet species requirements</i>	Agency	tbd	→				
3p Proposed action for the black bog ant <i>Ensure river management practices in occupied areas take into account requirements of ant</i>	Agency	tbd	→				
3q Proposed action for the great crested newt <i>Support Dorset County Biodiversity project and Blackmore Vale habitat restoration project in order to implement BAP actions</i>	Agency	tbd	→				
3r Proposed action for the medicinal leech <i>Implement actions from the UK BAP</i>	Agency Partners	tbd	→				
3s Proposed action for the starlet sea anemone <i>Implement actions from the UK BAP</i>	Agency Partners	tbd	→				
3t Proposed action for salmon, brook and river lamprey and bullheads (see Sections 3.2.2 and 3.6.1)							
3u Proposed action for the round-mouthed snail <i>Survey requirements to be assessed</i>	Agency Partners	tbd	→				
3v Proposed action for the tentacled lagoon snail <i>Survey requirements to be assessed</i>	Agency Partners	tbd	→				
3w Develop programme of winterbourne surveys and implement. <i>Ecological surveys with particular regard to important invertebrate assemblages will be continued and analysed in relation to the winterbourne flow signature surveys. A strategy will be developed to use the information as a management tool</i>	Agency	tbd	●	●	●		
3x Provide support to the Environmentally Sensitive Area scheme	Agency	tbd	→				

In addition, phase II (middle-list) action plans for invertebrates and vascular plants have recently been produced, eight of which contain actions for which the Agency is responsible, as well as some draft marine habitat plans. The table below outlines habitats and species found in the area that are in the phase II plans for which full action plans are being produced.

Habitat

Saltmarsh
 Sand dunes
 Maritime cliff slope and tops
 Vegetated shingle structures
 Mudflats
 Maerl beds

Species

Reed bunting
 Cut grass
 Rock sea lavender
 Pillwort
 Greater water parsnip

The Agency's Winchester Office (Southern Region) is closely involved with the recently launched Hampshire BAP Partnership. Officers from the Blandford Office are kept informed of progress.

There are other habitats and species within the area that are nationally or locally scarce and at present are not on any of the BAP lists. These include a series of invertebrate communities dependent on wetland habitats and several nationally scarce plants such as *Chamomile* and *Mudwort* that are dependent on wet, disturbed habitats. These require special attention. Their whereabouts are known, and the Agency will ensure that their requirements are taken into account if any operations or schemes are undertaken, for example, changes to grazing regimes or bankside management.

The tiny watershrew has been recorded in the area, but its distribution both locally and nationally is unclear, as are its ecological requirements. The Agency will follow national guidelines on the protection of habitat and contribute towards any proposed surveys.

3.4

Conserving the land

Local planning authorities and ourselves 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. We will also work with local authorities to identify and report on the extent of contaminated land and we will regulate special sites.

3.4.1 Potential impact of development on the environment

Local planning authorities control development through the land use planning system. The Agency, as a statutory consultee, advises the planning authorities on the impact of proposed development together with our requirements for environmental protection. We also work with the planning authorities to ensure that suitable policies to protect and enhance the environment are incorporated within their local development plans (see Section 4.1).

Development that takes account of the environment can reduce the risk, for example, of pollution and also flooding by preventing rapid surface water runoff or maintaining flood storage capacity. Impermeable surfaces, such as car parks and roads, and modern drainage systems can have significant consequences on the environment; removal of the natural filtering effect of vegetation and soil can affect water quality, and increased runoff rates can lead to higher flood flows in downstream areas. There are several techniques and approaches that can help to minimise these effects, usually referred to as *source control techniques*. Examples of surface water drainage techniques include soakaways, infiltration devices and attenuation ponds.

Concern has been expressed over future development and flood risk implications in Warminster. The Agency has conducted investigations in three areas to help identify risks and to advise planners:

- publication of Section 105 floodplain maps
- extended studies and flood outlines for ordinary watercourses
- region wide blockage study (for culverts) to determine a method of predicting the frequency of potential blockages. The results of this will be promoted for use by those with responsibilities for culverted watercourses

Risk areas highlighted included the following: existing town culverts have no spare capacity, further development upstream of these culverts may exacerbate the flood risk and the risk of culvert blockage is ever present irrespective of further development.

The way ahead will require a strategic approach to forward planning and future proposals should also consider source control techniques including strategic attenuation (storage of excess storm water and subsequent release in a controlled manner).

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
4a Promote use of source control techniques where ground conditions and groundwater protection requirements permit. <i>We will seek to persuade developers to incorporate techniques into future developments, encourage local authorities to include related policies in their local plans and promote legislation that will facilitate the routine inclusion of source control measures into future development proposals</i>	Agency	tbd	→				
4b Continue to encourage a strategic approach to forward planning for development in and around Warminster. <i>This should include the consideration of source control techniques</i>	Agency Conservation bodies, EN Water Company	tbd	→				

Road transport is not our responsibility. However, 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 have influenced the recent 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.

Nationally we are also working on a risk assessment of road schemes. It will provide a means for the Agency, at the local level, to assess the impacts that future transport policy options may have on our interests. The assessment is primarily for trunk roads and motorways which are the responsibility of Government and as such are managed by the DETR.

The A303(T) Stonehenge tunnel and bypass of Winterbourne Stoke to the north of the plan area is one of those that will be assessed using the risk-based approach.

The County Council, as the Highways Authority, sets out proposals for the strategic road network in the Structure Plan and their Transport Policies and Programme submission. Within the plan area the majority of road schemes are for carriageway improvements within existing corridors.

The Government Office for the South West is currently undertaking a study considering alternative solutions to Salisbury's traffic problems, including the proposed Brunel Link Road, following cancellation of the A36(T) Salisbury Bypass.

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

3.4.2 Contaminated land

A consequence of historical development is that sites become vacant when current uses end (*brownfield land*) and in some cases the land has become contaminated. Contamination of land may cause damage to soil, plants, wildlife, man or buildings and contaminants can also spread to the air and surface or ground water (see Section 3.1.3).

This issue must be addressed, both to remediate the land itself and also to help limit future development on greenfield sites. A government target for the increased re-use of brownfield land has recently been set. Most contaminated sites are improved during re-development, 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, this may be undertaken by national owners or Government-sponsored bodies such as Development Agencies or English Partnerships.

As there are sites, which in their current condition are causing or are likely to cause pollution or harm, new provisions were included in the Environment Act 1995, which should be enacted in July 1999. Local authorities are the key regulators under the Act and will carry out surveys to identify contaminated land, and will then, in collaboration with the polluters and/or landowners, ensure that works are carried out to remove the identified risks. The Agency will act as a consultee and advisor, although some sites will be designated as *special sites* for which we will take responsibility.

Ministry of Defence (MoD) land, if identified as contaminated, will be designated as special sites. This potentially has major implications for the plan area and we will continue to work closely with the MoD (see Section 4.5) and local authorities to deal with any issues that may arise.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
4c Contribute to the development planning process to ensure effective improvement of contaminated sites proposed for development.	Agency	tbd	→				
4d Work with national companies and Agencies to ensure effective improvement of contaminated sites proposed for development	Agency	tbd	→				
4e Assist local authorities to implement their responsibilities under the new regime for the improvement of contaminated land	Agency LAs	tbd	→				
4f In consultation with local authorities manage contaminated land sites identified as special under the new regime	Agency LAs	tbd	→				

There have also been concerns within the plan area relating to possible contamination of land and human health risks from the disposal of carcasses potentially contaminated with Bovine Spongiform Encephalopathy in the plan area. The Agency commissioned a report assessing the risks to public health from this practice, which was carried out at a number of sites throughout the country. The findings demonstrated that the risk from leachate were insignificant and well within acceptability guidelines.

3.4.3 Impact of land use on water quality

The condition *Chalk Stream Malaise* (deterioration of chalk streams) identified by anglers is characterised by a number of symptoms including poor water quality, particularly with regard to:

- increased water turbidity
- poor aquatic plant growth
- increased algae growth
- siltation of river bed gravels
- reduced breeding success for trout

(see Sections 3.1.2, 3.2.1, 3.6.4)

Anecdotal evidence suggests that contributing factors could be agricultural and urban non-point source (diffuse) pollution allied with a deterioration in river habitat.

Historically pollution control has had a strong emphasis toward point source control from specific discharges but the Agency are now adopting a more

holistic approach. Integrated strategies are being developed to deal with point source and diffuse pollution including contamination washed into rivers from urban areas and agricultural land. We are also working closely with the MoD to minimise the impact of their activities on Salisbury Plain (see Section 4.5).

The Agency's *Landcare Project*, set up in 1997, specifically aims to reduce non-point source pollution from agricultural activities. Substantial progress has been made in raising the general awareness of agricultural non-point source pollution within the farming community in the upper plan area and of ways of controlling it. Relatively low cost *Agricultural Best Management Practices* have been used successfully abroad to control diffuse pollution; these techniques help keep potential pollutants such as soil, pesticides and fertilisers on the fields, where they are of benefit, and out of water courses. Focus groups consisting of people who live and work by the river have been set up and the information they have provided on diffuse pollution problems has been extremely useful.

The main focus of the project in the coming years will be the development of a partnership of organisations and the farming community which will work together to tackle the problem of diffuse pollution.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
4g Continuation of Landcare Project. <i>This will involve clarifying the impact of diffuse agricultural pollution on river water and gravel quality through specialist monitoring work; develop a consortium consisting of the Agency, farming community and other organisations to work in partnership to tackle the non-point source agricultural pollution problem; demonstrate the efficiency of best management practices and the Landcare strategy</i>	Agency Others	tbd	●	●			

Diffuse agricultural inputs are believed to be contributing to River Quality Objective failures on the River Nadder (see Section 3.6.3).

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. The aim is to ensure that waste management activities do not give rise to pollution of the environment, harm to human health or serious detriment to the local amenity.

There are a number of active licensed waste sites in the plan area including eight landfill sites, eight waste transfer stations and four civic amenity sites. Although waste statistics are not readily available it is estimated that 65,000 tonnes of waste were sent to landfill sites in the area during 1997/98. Not all of this will have been produced within the plan 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 (WDA) (County Council or Unitary Authority) arranges for the disposal of household waste in its area. WDAs 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. The Government has just published a consultation paper, *Less Waste More Value*, prior to the new White Paper to be published in 1999, which will set out the National Waste Management Strategy. In the consultation paper, the Government recognises that there are few reliable statistics on waste and makes it an early priority to correct this deficit.

The main objectives of the strategy are to reduce the amount of waste society produces, making the best use of the waste produced, and adopting 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 the bottom (disposal) to the top (reduction) of the hierarchy. In between these are re-use and recovery. The Government has also highlighted seven key commitments that will underpin the strategy:

- substantial increases in recycling and energy recovery
- engagement of the public in increased re-use and recycling of household waste
- a long-term framework with challenging targets underpinned by realistic programmes
- a strong emphasis on waste minimisation
- using the waste hierarchy as a guide, not a prescriptive set of rules

- creative economic incentives like the landfill tax
- increased public involvement in decision making

A sound waste strategy depends on:

- determining how much waste there is, where it is produced, by whom and what it consists of
- reporting on the environmental effects of different ways of recovering and disposing of waste
- establishing which facilities are used to treat, remove and dispose of waste and what future capacity is needed for the options that might be used

The Agency has a formal role to play in providing advice on the Government's waste strategy. The Agency will be carrying out the first national survey of commercial and industrial waste arisings and waste facilities. The survey commenced in October 1998 and will be completed by March 1999. The information collected will inform the Government's strategy. The information will also be supplied to waste planning authorities.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
Sa Undertake the National Waste Survey	Agency	tbd	●				
Sb Supply information to waste planning authorities	Agency	tbd	●				

In addition to accurate information about the types and amounts of waste, waste planning authorities need to make decisions about the type of waste management facilities required. These decisions are not straightforward and to help those who have to assess the relative merits of different waste management options the Agency is developing a decision-making aid that uses Life Cycle Assessment (LCA) techniques. LCA 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. LCA further attempts to relate these to their effects upon the environment. The Best Practicable Environmental Option (BPEO) for a particular waste in one area will not necessarily be the same in another.

A national research programme has explored the application of LCA techniques to waste management with the aim of providing an objective basis for the comparison of waste management strategies and of options involved for individual waste types. It is aimed principally at informing the national waste strategy and local waste management planning. The Agency is to release a software tool early in 1999 which is intended to 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	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
Sc Assist waste planning authorities in determining BPEO for waste management options	Agency	tbd	→				

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, clean 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 100 local businesses as well as local authorities, Local Agenda 21 groups, Business Link and an Environmental Trust. Agency officers provide secretarial and technical support. The group is not limited to companies within the South Wessex Area; where appropriate, businesses from outside the area are welcome. Many of the businesses involved in the group have made substantial savings through implementing waste reduction strategies.

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, especially in the Salisbury 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 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.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
5d Promote and support the South Wessex Waste Minimisation Group	Agency	tbd	→				
5e Provide advice to commerce and industry on waste minimisation	Agency	tbd	→				

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* came into force in March 1997 and 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. If a business reduces the amount of packaging it handles, it reduces the obligation, and therefore the cost, of compliance.

The Agency is charged with implementing, monitoring and enforcing this legislation and will provide advice on the implementation of the regulations. Businesses have to register with the Agency's Producer Responsibility Registration Unit and 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 must be submitted to the Agency and compliance visits to businesses will begin in 1999 after submission of the first certificate.

It is felt that it will assist businesses if they are able to show that their obligations have been discharged, by obtaining evidence of recovery and recycling to support their certificate of compliance from Agency accredited UK reprocessors. Accreditation is voluntary but it will considerably ease the administrative burden for producers in terms of records and returns. The Agency is responsible for the accreditation of reprocessors and will undertake audits.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
Sf Monitor compliance. <i>Certificates of compliance are required for registered schemes and businesses from 31/1/99. Each company/scheme will be visited once every 3 years</i>	Agency	tbd	→				
Sg Continue accreditation of reprocessors. <i>Accredited reprocessors to be re-accredited every year. Accreditation to continue as and when a reprocessor applies to the Environment Agency</i>	Agency	tbd	→				
Sh Check company registrations. <i>Ensuring companies who are affected by the regulations are registered</i>	Agency	tbd	→				
Si Raise business awareness of the regulations through telephone calls, visits and seminars. <i>Businesses affected must handle more than 50 tonnes of packaging material per year and have a turnover of more than £5 million. The turnover threshold drops to £1 million from the year 2000</i>	Agency	tbd	→				

3.5.4 Reducing the fly-tipping of waste

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.

There are a limited number of civic amenity sites in Wiltshire, which means the public may have to travel long distances to use them. However the area is currently serviced by community skips which are periodically provided by Wiltshire County Council and allow for disposal of bulky household waste. Fly-tipping of waste in isolated areas around the Salisbury area is becoming an increasing problem. This may in part be due to the Landfill Tax that has recently added to disposal costs leading to unscrupulous contractors fly-tipping waste to avoid the disposal costs at authorised sites.

We will encourage and support the local authority to provide collection sites to help tackle the fly-tipping problem. The Agency will also be liaising with local authorities, police, MoD and conservation bodies to enforce legislation to control fly-tipping.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
Sj Continue liaison with local authorities	Agency LAs	tbd	→				

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 and quantity of water in the river but also at its physical environment, including landscape, recreational use, flood control works and the wildlife of the river and surrounding land.

3.6.1 Protection of nationally and internationally important habitats and species

The EC Habitats and Species Directive and the EC Birds Directive (which was transcribed into UK Law as the Conservation Natural Species and Habitats Regulations, 1994) 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 Directives will both maintain and restore habitats and species of European interest to a favourable conservation status and maintain their geographical range and extent. There are a number of sites proposed for designation as SACs and SPAs respectively under the Directives in the area, see Map 3 and the table below. These will eventually become part of the Natura 2000 network.

Area ¹	Designation	Qualifying interests	Potential threats
Salisbury Plain (including Parsonage Down & Porton Down)	cSAC/SPA	Semi-natural dry grasslands and scrubland facies: on calcareous substrates <i>Juniperus communis</i> formations on heaths or calcareous grasslands Marsh fritillary Hen harrier Stone curlew	Abstraction Water quality Waste disposal Operational work ²
Dorset Heaths (This includes the land surrounding Christchurch Harbour)	cSAC/SPA	Northern Atlantic wet heaths with <i>Erica tetralix</i> Southern damselfly Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) Eu-atlantic decalcified fixed dunes (Calluno-Ulicetea) Embryonic shifting dunes Dry heaths (all subtypes) Southern Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i> Depressions on peat substrates (Rhynchosporion) Northern Atlantic wet heaths with <i>Erica tetralix</i> Southern damselfly	Abstraction Water quality Waste disposal Operational work
New Forest	cSAC/SPA	Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains Stag beetle Early gentian Dry heaths (all subtypes) Beech forests with <i>Ilex</i> and <i>Taxus</i> , rich in epiphytes (Ilici-Fagion) <i>Stellario-Carpinetum</i> oak-hornbeam forests Oligotrophic waters containing very few minerals Atlantic sandy plains with amphibious vegetation: <i>Lobelia</i> , <i>Littorella</i> and <i>Isoetes</i> Mediterranean temporary ponds Depressions on peat substrates (Rhynchosporion) Northern Atlantic wet heaths with <i>Erica tetralix</i> Southern damselfly Breeding and wading birds	Abstraction Water quality Waste disposal Operational work

Area ¹	Designation	Qualifying interests	Potential threats
Pewsey Downs	cSAC, SPA	Early gentian	Waste operations Waste disposal Operational work
Chilmark Quarries	cSAC	Barbastelle bat Bechstein's bat	
Prescombe Down	cSAC	Early gentian	Waste disposal
Great Yews	cSAC	<i>Taxus baccata</i> woods	Waste disposal
River Avon System (including Jones Mill, Lower Woodford Water Meadows and Porton Meadows)	cSAC	Brook lamprey Floating water crowfoot Salmon Bullhead Sea lamprey Desmoulin's whorl snail	Abstraction Water quality Waste disposal Operational work
Avon Valley (Bickton to Christchurch). Also a RAMSAR site (qualifying interests: greater range of habitats than any other chalk river in the UK)	SPA	Bewick's swan Gadwall White-fronted goose Breeding wetland birds	Abstraction Water quality Waste disposal Operational work
Fontmell & Melbury Downs	cSAC	Early gentian	Waste disposal

¹ Sites wholly or partly within area

² Operational work includes all work the Agency carries out itself e.g. flood defence work (this is a preliminary list only)

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 site), the regulations will apply. This means that the Conservation regulations already apply to the sites listed above.

With regard to SACs and SPAs, the Agency is a competent authority, and has extra responsibilities to safeguard the sites. Specifically, we are obliged to review all existing authorisations (e.g. consents to discharge, water abstraction licences and waste licences) and activities (flood defence work) which may be affecting these sites, taking advice from English Nature fully into account. These authorisations can be either inside or outside the site, as those outside the boundary may have the potential to impact the qualifying interests.

Any proposals or applications for new authorisations which may, either alone or in combination with others, have an 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.

Stage II of the Agency review procedure is currently underway using a methodology agreed with English Nature to determine which authorisations are likely to be adversely affecting these sites. Bids are currently being made to resource this process, which should be complete by September 1999. Once complete, the review process can begin and it is intended to be complete by 2004.

In addition, some of the above species and habitats will have actions for the Agency from the UK Biodiversity Action Plans (see Section 3.3).

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6a Bid for resources to use stage II methodology to determine authorisations requiring review and undertake work. <i>This will be done at a regional and area level</i>	Agency	tbd	●	●			
6b Following on from 6a, undertake a review of identified authorisations	Agency	tbd		●	●	●	●
6c Identify water quality flow and management requirements to maintain favourable status of species/habitats within Habitat Directive sites. (see also action 6f and section 3.6.5)	Agency EN	tbd	→				
6d Maintain and, where appropriate, change or restore quality, flows and operational practices to maintain favourable status of sites/species. (see also action 6f and section 3.6.5)	Agency EN	tbd	→				

The EU LIFE project aims to establish conservation strategies in selected catchments to safeguard specific interests. English Nature and the Agency have put in a bid to include the Avon cSAC which, if successful, will set conservation objectives, develop monitoring procedures and implement demonstration projects to address key issues. The proposed demonstration projects on the Avon include developing new techniques for ameliorating silt impacts on the qualifying cSAC interests and applying bioengineering techniques to restore and rehabilitate the *Ranunculus* habitat as part of the restoration of riverine habitats.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6e Progress EU LIFE bid for River Avon	Agency EN	400k	●	●			

Additionally, we have drawn up a Memorandum of Understanding with English Nature which requires the Agency and English Nature to produce a conservation strategy and consenting protocol, initially for each river SSSI. This will clarify the division of responsibilities between English Nature and ourselves, and focus on how we should deal with potentially damaging activities. 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 protocol is a working agreement between English Nature and the Agency and aims to reduce bureaucracy relating to activities requiring authorisation on the river. It does this by establishing who is responsible in the first instance, clarifying internal and external procedures and agreeing operations for Agency activities on the River Avon. The consenting protocol and conservation strategy for the River Avon SSSI are due to be finalised and implemented by March 1999 and reviewed every five years or sooner if appropriate.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6f Produce consenting protocol and conservation strategy for the River Avon SSSI	Agency EN	tbd	●	●			
6g Prepare leaflet for landowners to explain conservation strategy	Agency EN	tbd		●			

3.6.2 Compliance with European Directives (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. During the 1997 bathing season, exceedences of the Directive were recorded at bathing waters close to the entrance of Christchurch Harbour (Avon Beach and Friars Cliff).

Following discussions with the Agency, WWSL have installed ultra-violet disinfection at Christchurch sewage treatment works; it was commissioned in August 1998 and is now fully operational. The Agency will continue to appraise the performance of the disinfection process and ensure local bathing waters comply with the Directive. In addition, under AMP3 (see Section 4.3) there is a proposal to reduce storm discharges from the works. Impacts of Holdenhurst sewage treatment works are also to be assessed. For further details see *Dorset Stour LEAP Action Plan* (1998), available from the Agency's Blandford Office.

A number of other water quality related EC Directives apply to the plan area but only one further failure occurred during 1997. Under the EC Freshwater Fish Directive (*concerning the quality of waters needing protection or improvement in order to support fish life*) most of the River Avon is designated as suitable to support a salmonid fish population. Out of 226 km, only the stretch between Hale and Knapp Mill failed to comply; this was due to low dissolved oxygen levels. This stretch supports large natural weed growth during the summer months along with the associated diurnal variations in dissolved oxygen levels. There is no further evidence to suggest that the stretch is polluted and weed growth is thought to be causing the failure.

Actions	Action By	Cost to Agency (£)	Financial Year
			98 99 00 01 02
6h Investigate reasons for low dissolved oxygen levels (EC Freshwater Fish Directive). <i>Diurnal variation in dissolved oxygen levels will be monitored and a review of sampling runs will be undertaken to try and achieve a better spread of samples through the day</i>	Agency	tbd	●

3.6.3 The setting and maintenance of water quality targets

We manage water quality by setting targets called River Quality Objectives (RQO) which are intended to protect current water quality and future use. We use them as a basis for setting consents for new discharges and planning future water quality improvements. The RQOs we set must be achievable and sustainable; we must be able to identify what needs to be done to meet the target, and to ensure as far as practicable that water quality can be maintained at this level in the future. Although RQOs have been set for the river system we would still welcome comments on them.

The classification scheme known as River Ecosystem comprises five hierarchical classes reflecting the chemical quality needed by different types of river ecosystem including the types of fishery they can support.

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
RE5	Water of poor quality which is likely to limit coarse fish populations

The water quality assessment in this LEAP is based on three years data between 1995-1997 (Map 5). There were three significant River Quality Objectives failures, and three marginal failures; following these failures we propose to carry out investigation work on these river reaches.

River Stretch	Parameter causing non-compliance	Reasons contributing to non-compliance
Nadder (Ludwell-confluence with Sem)	BOD (Significant failure)	Believed to be diffuse farm pollution; campaign initiated 2-3 years ago and is ongoing. This catchment is also part of the Landcare project (see Section 3.4.3)
Nadder (Confluence with Fovant Brook-confluence with Avon)	BOD (Significant failure)	Believed to be diffuse farm pollution (see above)
Wylde (Warminster sewage treatment works (STW)-Hensford Marsh)	Total ammonia (Significant failure)	Due to STW; modelling indicates the conditions of the new consent should mean the RQO is achieved once upgrading of the works is complete
Avon (Downton-Downton STW)	BOD (Marginal failure)	Believed to be due to algae; investigation to determine cause
Fonthill Stream (Upstream Fonthill Lake-confluence with Nadder)	BOD (Marginal failure)	Lake sampling point may not be representative and/or algae; investigation to determine cause
Wylde (Kingston Deverill-confluence with Shearwater watercourse)	Dissolved Oxygen (Marginal failure)	Investigation to determine cause

In addition there were a number of Long Term River Quality Objective failures in the Hampshire Avon, Linford Brook, Ditchend Brook, Sem, Sleep Brook, Huckles Brook and Ebble. Long term objectives can be proposed where we are unable to identify solutions or resources to resolve current water quality problems and where applicable are used as the basis for setting consent for new discharges. Given the high conservation status and resource value of the Avon, the Agency will be working to ensure that these long term targets are attainable in the near future.

We also monitor biological quality based on the diversity of aquatic invertebrate life; they are unable to move far and respond to long term conditions within the watercourse. We have devised a biological general quality assessment classification to show biological river quality. Provisional results indicate that there has been little overall change since the 1995 survey; results of the 1997 survey are still being assessed.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6i Investigate causes of River Quality Objective failures on the following reaches. In 1997 there were three significant failures (Nadder Ludwell-confluence with Sem, Nadder confluence with Fovant Brook-confluence with Hampshire Avon, Wylde Warminster STW-Hensford Marsh), and three marginal failures (Hampshire Avon Downton-Downton STW, Wylde Kingston Deverill-confluence with Shear Water watercourse, Fonthill Stream upstream of Fonthill Lake-confluence with Nadder)	Agency	tbd	●	●			
6j Investigate causes of Long Term River Quality Objective failures in the Hampshire Avon, Linford Brook, Ditchend Brook, Sem, Sleep Brook, Huckles Brook and Ebble	Agency	tbd	●	●			

3.6.4 Nutrient enrichment of water

Nutrients, such as nitrates and phosphates, enter watercourses as a result of natural processes and human influences. Nutrient enrichment at an accelerated rate can result in changes to flora and fauna and excessive fluctuations in river water dissolved oxygen concentrations which can be harmful to wildlife, and at extremely high concentrations, a potential health risk to animals. Nutrient enriched waters are said to be eutrophic.

Excessive nutrient levels could also be implicated in the stimulation of enhanced algal growth which may impair growth of *Ranunculus*, particularly at low flows, and can also cause poor conditions for fly-fishing (see Section 3.2.1).

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

The Avon downstream of Salisbury sewage treatment works has been designated a Sensitive Area (eutrophic) following demonstration of eutrophic conditions by the Agency. Principally this means sewage works with a connected population exceeding 10,000 PEs will require phosphate reduction. This criteria applies to Salisbury and Ringwood sewage treatment works. The Agency has asked that phosphorus reduction at Ringwood should be deferred until the benefits of nutrient reduction at Salisbury sewage treatment works can be assessed. Chemical and biological monitoring continues in relation to the Urban Waste Water Treatment Directive and has been extended to assess the impacts of Warminster sewage treatment works whose connected population exceeds 10,000 PEs.

The Agency has also worked in partnership with English Nature to investigate the nutrient status of the upper part of the plan area, developing a nutrient budget for all sources of nutrients including small and large sewage treatment works and diffuse sources such as runoff from agricultural land and urban areas.

This work indicated that a substantial proportion of the nutrients entering the Avon originated from diffuse sources. The work also indicated that point source pollution from sewage treatment works is a significant source of nutrients during the growing season of water plants. The Agency will be working with the water companies (under AMP3, see Section 4.3) and English Nature (the River Avon is a SSSI and cSAC, see Section 3.6.1) to ensure that reduction of some nutrients prior to effluent discharge will be undertaken, where it can be demonstrated to be appropriate.

Additionally the Trophic Diatom Index has been developed to assess the eutrophic status of rivers. It can be used to distinguish between the impact on eutrophication of nutrients from diffuse agricultural sources and from point sources such as sewage works. During 1998 Agency biologists have undertaken a survey to assess the eutrophic status of the upper Avon with particular regard to the impact caused by sewage works.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6k Continue monitoring under the EC Urban Waste Water Treatment Directive to ascertain the effectiveness of nutrient reduction at qualifying sewage works. <i>This will involve chemical and biological monitoring</i>	Agency	tbd	→				
6l Continue to work with English Nature and water company to reduce point source inputs. <i>This includes work under AMP3 (see Section 4.3) and the Habitats Directive (see Section 3.6.1). The Landcare project (see Section 3.4.3) will consider diffuse inputs</i>	Agency EN Water Company	tbd	→				
6m Analyse results of the trophic diatom index survey. <i>This may require some follow-up work</i>	Agency	tbd	●	●			

Nuisance algae blooms are a natural phenomenon and are not necessarily indicative of excessive human influence; the Agency will implement standard procedures whenever blue/green algae blooms are reported notifying the relevant authorities, principally local environmental health officers, as appropriate. The South Wessex area recently hosted a seminar on nuisance algae to help clarify roles and promote partnerships.

3.6.5 Maintaining our rivers and flood defences

The Agency has a responsibility to exercise a general supervision over all flood defence matters and has 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 360 km. The Agency also maintains and operates a number of flood alleviation schemes within this length.

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.

Due to a reduction in grant aid it is unlikely that any of the identified flood alleviation schemes for the plan area will go ahead in the lifetime of this plan. Maintenance of the existing schemes will however continue. Proposals for a scheme in Christchurch Harbour have been abandoned as the benefit/cost ratio was found to be insufficient. Mundeford Quay and the spit to the south are regarded as the prime defence and there may be possible future partnerships in this area with Christchurch District Council.

Stage two of the lower Avon flood defence scheme was completed in February 1998 following the completion of stage one in 1994. Further information on the scheme is provided in the Agency's leaflet *New Defences for Christchurch*.

Currently, Downton is susceptible to flooding, even in only moderately severe events, with the primary means of defence being flood warning. The Agency continues to apply its development control procedures (see Section 3.4.1) by objecting to proposed developments in the area at risk in order to try and maintain the status quo. Land drainage consenting procedures also assist with controlling development impacts. This is aligned with improvements to flood warning which will be determined by a region wide review of flood warning levels of service (see Section 3.6.6). Guidance from DoE Circular 30/92 (*Development and Flood Risk*) and information from Section 105 floodplain maps are shared with the local authority to reduce the flood risk. If resources allow, improvement works to river channel capacity may be undertaken.

An Agency led project will attempt to maximise the use of the floodplain downstream of Downton by utilising existing dry channels to pull water away from Downton. Fisheries and habitat improvements will also be undertaken as part of the project.

Actions	Action By	Cost to Agency (£)	Financial Year
			98 99 00 01 02
6n Undertake project work to maximise the use of the floodplain downstream of Downton	Agency	tbd	● ●

One means by which water level requirements for a range of activities, including agriculture, flood defence and conservation, can be balanced, is by preparation and implementation of water level management plans.

A strategic water level management plan for the lower Avon has been developed following initial investigation of site suitability during 1995/96 by the Agency in partnership with the Royal Society for the Protection of Birds, English Nature and

the FRCA. Water level management plans have been developed to integrate all functions within the Agency to deliver more sustainable water level management and also to be focused on actions to obtain environmental improvements, where landowners are keen to co-operate. The following trial local plans have been identified:

- *Avon Causeway* – a water level control structure has been installed and is being monitored for its effectiveness
- *Breamore* – it is hoped that a management scheme can be implemented during the Autumn
- *Lower Woodford* – negotiations with landowners are still ongoing
- *Britford water meadows* – work continues with managing the apportionment of flows to satisfy all uses along the three main channels, following the initial Operation Britford project; agreement, for example, on the operation of the system is important if river water quality is to be maintained. The existing water level management plan, drawn up in 1997, identified objectives which are currently being addressed and will result in production of a revised plan

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6o Implement Avon Water Level Management Plan. <i>Establish improved water level management in trial areas</i> <i>Establish monitoring program on trial sites to measure environmental performance (additional £3k)</i>	Agency RSPB EN FRCA Owners	35k (to date)	●	●	→		
6p Preparation of a revised water level management plan for Britford. <i>This will follow on from an integrated action plan which will try and resolve several issues in the Britford area. It is likely to be drawn up in 1999/00</i>	Agency RSPB EN FRCA Owners	tbd	●	●	●		
6q Undertake further flow apportionment monitoring at Britford. <i>Monitoring will ideally take place through a range of flow conditions and the methodology will involve measurements of flow and water quality</i>	Agency	tbd	●	●			
6r Install telemetry to allow the remote monitoring and operation of key parts of the Britford system. <i>Will only be progressed pending results of 6q and availability of funding</i>	Agency	tbd					

Weedcutting is undertaken for land drainage on the Avon below Salisbury by the Agency, and above Salisbury for fisheries by the Wiltshire Fisheries Association. An audit is currently being undertaken which should help clarify the impact of weedcutting and identify best practice. A review of routine work on ex-Internal Drainage Board ditches is also being undertaken.

The results of the audit will be used by the Agency to review its weedcutting practices. As a minimum it may lead to modifications to the different types of cutting laid out on the agreed cutting maps; as a maximum it may lead to cessation in areas where the land drainage benefits are insufficient to overcome the environmental impact the cutting could be shown to have. Issues include: the lowering of water levels and the impact upon breeding waders; disturbance to breeding birds and course fish habitat; and the impact on river ecology. This review is also required for the Consenting Protocol and Conservation Strategy (see Section 3.6.1).

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6s Continue with audit. Present findings at Conservation Liaison meeting and Area Flood Defence Committee	Agency	5k	●	●			

The Agency is also currently undertaking a study into the use of a Laser Induced Direction and Range System (LIDAR); LIDAR is an airborne terrain mapping system, which uses a laser to measure the distance between the aircraft and the ground. This technique results in the production of a terrain map.

An airborne survey of the tidal lengths of estuaries and coastline between Christchurch and Lands End has been completed, evaluation of the data is now underway. It is intended that initial uses will include complementing the Section 105 floodplain surveys and help with flood warning.

3.6.6 The provision of flood warning and emergency response

Absolute flood protection is not possible and because of this we need to warn people when there is a risk of flooding. From 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.

A flood warning service is provided on most rivers but not for minor watercourses or for surface water flooding. When 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 in some places, to those directly at risk. Detailed arrangements are documented in the *Dorset, Hampshire and Wiltshire Flood Warning Dissemination plans*, which can be viewed at our offices.

Where possible the Agency aims to issue a warning at least two hours in advance of flooding. A study into the level of service of flood warning is currently being carried out in the South West to determine whether the target standard of two hours is being met; it is expected to be completed in this area by the end of 1998.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6t Complete study into the level of service of flood warning in the South West. Results will identify possible additions and other improvements to the system, including new flood detection sites and increasing the number of properties receiving direct warnings	Agency	tbd	●				

3.6.7 Need to protect features of archaeological interest

The Avon Valley is characterised by the many surviving water-meadow systems, which allow us a glimpse of past agricultural practices. In addition, permanently waterlogged or flooded areas within the river valley provide the ideal conditions necessary for the preservation of undiscovered archaeological deposits.

During 1997/98 the Agency funded a pilot project to investigate the extent, survival and historic importance of water meadows. The pilot project proved to be a success, and it is hoped to initiate an extensive study on the Avon, subject to funding.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6u Initiate extensive study on the Avon to identify the extent, survival and historic importance of water meadows. We will look for partnerships to undertake this work	Agency	tbd	●	●			

3.6.8 The development of recreation

Although there was general support for the Avon Valley Access Project, there was a disappointing response in terms of financial support. However, the Countryside Commission plans to promote access from urban areas to river valleys as part of their River Valley Initiative in 1999 (the *Greenlink* project). This would fit well with the context of the Avon Valley.

In the meantime, opportunities should be taken for increasing general public awareness through promotion of the landscape, nature conservation and historic interest of the Avon Valley and of existing access opportunities. Ideally this should be targeted at the main centres of population (Christchurch, Ringwood, Fordingbridge and Salisbury) and relate where possible to existing facilities for public access around these centres. There is also an extensive public footpath network over much of the area and the Avon Valley Way runs from Salisbury Cathedral to Christchurch. A canoe club operates in Salisbury and public rights of navigation exist in the tidal stretches of the river at Christchurch.

Christchurch Harbour is a fine natural harbour, with multiple leisure uses associated with it. Most forms of water-based recreation take place, with some controls exercised by local authority byelaws. In addition, walking, bird watching and other informal leisure interests take place on the amenity land around the harbour. The harbour is an important recreational and ecological resource. There is a need to prepare a strategy, in partnership with others, to make the most effective use of these waters.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
6v Collaborative project to investigate scope for increased access as an appropriate component of balanced river valley use	Agency LAs	tbd		●	●		
6w Develop strategy for Christchurch Harbour. Possible partnerships with English Nature, Royal Society for the Protection of Birds, users and local Authorities.	Partners Agency	tbd	→				

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 (IPC) for which the Agency is responsible under the Environmental Protection Act (1990) (Part I). This approach considers releases to air (see Section 3.8), 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*.

We have recently authorised operation of an IPC process in the area, a small gas turbine power station, at Quidhampton.

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 (see Section 3.8).

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 (IPPC), which must be transposed into UK law by 31 October 1999.

IPPC will supersede IPC and will apply to a wider range of industries. The Agency is currently working with the DETR, to ensure that the legislation is workable and we are working with industry so that they also know what is coming and what is 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. There are none in the plan area.

Four sites have been authorised to accumulate and dispose of radioactive waste in the plan area; DERA and CAMR at Porton Down, Vetgen (Salisbury) and Salisbury District Hospital. All use small amounts of radionuclides for research purposes and the hospital also uses radioactive isotopes in the diagnosis and treatment of patients. The radionuclides used are short-lived and disposals are well within authorised limits.

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 DETR 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 and not the Agency. We are however reducing emissions from our own vehicles by reducing mileage and encouraging the use of public transport.

In March 1997, the Government published the UK National Air Quality Strategy, which sets objectives for air quality in the UK and provides guidance on how these may be met through action at national and local levels. The objectives are represented as air quality standards. Local authorities have started reviewing air quality in their areas in consultation with the Agency. If certain standards or guidelines are exceeded, an air quality management area may be designated which will require an air quality management plan to be developed by the local authority.

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). Locally no specific issues are expected, as there are no controlled processes in the plan area. Nationally we have set a series of strategic targets for reductions in emissions from these processes. International transboundary air flow means that objectives for certain pollutants, notably ozone, may themselves only ultimately be achievable through international co-operation.

Currently all local authorities in Dorset and Wiltshire are collaborating to produce county-wide assessments of air quality. All local authorities are currently consulting local people on air quality issues as part of this assessment. The Agency 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.

Officers from the Agency's Southern Region are actively involved with the Air Quality Steering Group for Hampshire.

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 causes 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 using 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 Agency controlled 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. Further details are available in the Agency's leaflet *Annual Environmental Report for the Agency's Own Activities 1997/98-Summary*.

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 more stormy this will lead to short intense rainfall periods which could increase the risk of soil erosion and diffuse pollution. Part of the Agency's Landcare project is designed to reduce the risk of soil erosion and land runoff (see Section 3.4.3).

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.

Should climate change be occurring it will very significantly affect naturally occurring communities. Ocean and climate trends in the North Atlantic in recent years are 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 3.2.2). Changes in the distribution and the timing of breeding in some bird species may also be occurring as a result of this process.

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; the impact of methane on climate change is greater than that of carbon dioxide. Burning the methane 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. Within the plan area it is likely that this will chiefly concern the landfill site at Somerley and the site operator is currently investigating the use of landfill gas to generate electricity.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
9a Review Somerley licence conditions and encourage the operating company to utilise landfill gas through their Non Fossil Fuel Obligations	Agency Operating Company	tbd		●			

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 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 (SMP) (see Section 4.2.2). Bournemouth Borough Council are the lead agency for the SMP which covers the coast from Durlston Head eastwards to Hurst Spit (Christchurch and Poole Bay SMP), and we are working in partnership with them and other organisations in the development of this plan.

A consultees forum was held at the end of September 1998 to allow key groups to feed information into the plan process. The final report is scheduled for completion in March 1999 and following consultation, member authorities will present the plan to their respective committees for formal adoption.

Stanpit Marshes has been identified as an area potentially at risk due to sea level rise; this has been recognised and will be addressed by the SMP.

Actions	Action By	Cost to Agency (£)	Financial Year				
			98	99	00	01	02
9b Participate in the development and adoption of the SMP	Agency LAs	13k external costs for 98/99		●			

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

Development Plans

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 authorities prepare statutory development plans; the policies in these plans will guide the way that land is developed in the future. We advise and guide local planning authorities to adopt policies that protect the environment from harmful development. Where we can, we will reinforce these policies when we comment on planning matters or in our own decision making. We will also advise these authorities about the impacts of proposed developments on the environment, and identify opportunities for environmental improvement (see Section 3.4.1).

The County Structure Plans have allocated the numbers of new houses and land for industrial and commercial development to be provided to meet the needs of the population. These are in line with Government Regional Planning Guidance for the South West and South East (for Hampshire) and strategic assessments of requirements.

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.

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

The Agency and local authorities both have responsibilities for issues of air quality (see Section 3.8) and contaminated land (see Section 3.4.2), 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.

4.1.1 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

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.

4.2 Planning in the coastal zone

This document also considers issues that affect the coastal zone. Above the low water mark, the Town & Country Planning system provides the means of regulating development; below this, regulation is controlled by a number of Government departments. The Government's view is that voluntary co-operation and self-regulation, with local authorities taking the lead role, is the best way to control activity and development.

4.2.1 Dorset Coast Forum

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 Services, British Petroleum, Amoco, Poole Borough Council, Bournemouth Borough Council, West Dorset District Council and Dorset Wildlife Trust. It aims to produce a Coastal Strategy for Dorset and to set an example at the European level on how to approach coastal zone management.

4.2.2 Shoreline Management Plans

Shoreline Management Plans (SMPs) 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). The Agency only has powers in respect of sea defence; local authorities have powers to carry out both sea defence and coast protection. SMPs 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. SMPs are promoted by coastal groups that comprise operating 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. SMPs 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 MAFF that they will be referred to when developing and revising county structure and local plans.

Bournemouth Borough Council are the lead agency for the Shoreline Management Plan which covers the coast from Durlston Head eastwards to Hurst Spit (Christchurch and Poole Bay SMP), and we are working in partnership with them and other organisations in the development of this plan (see Section 3.9.2).

4.3 Working with the water industry

Strategic business planning known as an Asset Management Plan (AMP) is the process by which water companies obtain funding for improvements primarily intended to deliver environmental benefits. These schemes have cost implications for customer's water bills and as a consequence the AMP must be agreed and approved by the government through OFWAT. Effective Agency input into the AMP process is vital if money is to be targeted to schemes that will ensure the delivery of maximum, cost-effective, environmental benefits.

The water companies' improvement plan for the period 1995-2000 is known as AMP2. AMP2 was developed in 1994 along guidelines agreed between the former NRA and Department of the Environment, the water services companies and OFWAT.

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's proposals for the National Environment Programme for water companies 2000 - 2005 was submitted to government in May 1998 in the document, *A Price Worth Paying*. The Agency is currently reviewing, for agreement with the DETR, those sewage discharges where improvement is required. The document also highlighted where investigation and investment is required to protect rivers and wetlands from the effects of abstraction (see Section 3.1.2).

4.4 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 other organisations such as the Local Government Management Board and the Government Office for the South West and South East (for Hampshire) also ensure involvement in Local Agenda 21 at a regional level.

In the plan area we are involved with Local Agenda 21 activity in a number of instances, including:

- membership of the Dorset Environmental Co-ordinators group
- facilitating at Salisbury District Councils Local Agenda 21 Day in May 1998
- contributing £10,000 to the Dorset and Wiltshire Action at Home programme in 1998/99
- providing educational materials for the Dorset and Wiltshire Action at Home packs

- establishment of individual staff contacts for each local authority via our Local Agenda 21 seminar held in Shaftesbury in October 1997
- attendance by staff contacts at Local Agenda 21 forum meetings and assistance in specific projects by providing technical expertise and funding
- provision of information in various formats including public registers, leaflets and our Internet Site

4.5 Working with the Ministry of Defence

The Ministry currently undertake numerous activities in the plan area and with the return of forces from Germany this activity is likely to increase in the future. Issues to be dealt with include discharges, workshop activities and the impact of training activities, in particular the use of tracked vehicles.

The Agency has worked in partnership with the Ministry and its agents by contributing to the development of the Salisbury Plain Training Area Environment Plan, which aims to minimize the environmental impact of activities in the area. We will seek to continue working in partnership with the Ministry (see Sections 3.4.2 and 3.4.3).

4.6 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 are two ESAs in this plan area, South Wessex Downs and Avon Valley; this scheme offers voluntary management agreements to farmers and landowners who agree to farm in more traditional ways.

The Water Fringe (Habitat) scheme is available on the Wylde, Nadder and upper Avon. New options to farm wet meadows in traditional methods to an agreed management plan were introduced in 1998. The Agency is keen to support schemes which allow farmers to enter the higher payment tiers (e.g. raised water levels) recognising the conservation value of the valley wetlands. Support and advice may be available through the water level management plan initiative (see Section 3.6.5). Up to the end of 1997, the uptake, expressed in terms of available river bank length, was 28%.

The Landcare project in the upper plan area is also working closely with the farming community with the specific aim of reducing non-point source pollution from agricultural activities (see Section 3.4.3).

4.7 Working with business

We are working with local businesses and their representatives to promote pollution prevention and waste minimisation (see Section 3.5.2).

4.8 Conservation

The Agency 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. The Agency will consult with English Nature, Wildlife Trusts and other conservation organisations where known sites may be affected by Agency activities or Agency consented activities.

There is also a close partnership of environmental organisations spanning the three counties, the Avon Liaison Group, which reviews schemes and initiatives for the area.

4.9 Education

We recognise that 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 must:

- educate young people to help them to make informed judgements about future environmental decisions
- 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

One example of where the Agency is encouraging young people (10 to 18 year olds) to learn more about the environment is through the *CREST Environment Research Challenge* which invites them to become researchers in projects linked to real life situations in their local environment. We are one of three sponsoring partners along with the National Environment Research Council and Unilever, representing regulation, research and industry.

Challenges are divided into eight topics including natural resources, global change, biodiversity and energy. A unique feature of the scheme is that it is accredited, which means work will count towards qualifications including Key Stage 3, *General National Vocational Qualification* and *A level*. Further details on how to register can be obtained from the Agency's Blandford office.

We also provide a wide range of information to all sectors of society and, in addition, give many talks and presentations.

4.10 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*.

5. Appendix

5.1 The role of the Environment Agency

The Environment Protection function includes:

- integrated pollution control - regulating the potentially most polluting industrial processes
- water quality - 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
- radioactive substances - a duty to regulate the disposal of radioactive waste (on all licensed sites) and the keeping and use of radioactive material and accumulation of radioactive waste (non-nuclear sites only)
- waste management and regulation - we regulate and influence the organisations and individuals that produce, collect and transport waste, deal with the handling of waste, its treatment, disposal, recovery, and re-use and decide policy
- air quality - in discharging pollution control functions, the Agency must have regard to the National Air Quality Strategy

The Water Management function includes:

- water resources - a duty to conserve, redistribute, augment and secure the proper use of water resources
- flood defence - aim to provide effective defence for people and the developed and natural environment against flooding from rivers and the sea. In practice, flood defence operates in three activity areas: alleviation, physical works and emergency response
- fisheries - a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries in order to optimise the social and economic benefits from their sustainable exploitation. The Agency is also the sea fisheries committee for some estuaries. We have statutory duties with respect to commercial fishing for sea fish and shellfish in these waters
- conservation - a duty to further wherever possible the conservation of special features when carrying out water-management activities, to have regard for conservation as part of Environment Protection activities, and generally to promote the conservation of natural beauty and amenity and the wildlife dependent on the aquatic environment
- recreation - a duty to promote the use of water and associated land for recreational purposes and a duty to consider the need to maintain public access at sites of conservation or historic interest. We must also have regard to preserving access to places of natural beauty and to take account in all aspects of our work the needs of the sick or disabled
- archaeology - a duty to consider the impact of all regulatory, operational and advisory activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate

- navigation - we have no navigation responsibilities in the South West Region

We do not cover all aspects of environmental legislation and service to the general public. Your local authority deals with:

- noise and odour problems
- litter
- air pollution from vehicles, household areas, small businesses and small industries
- planning permission (they will contact us when necessary)
- contaminated land issues (at present in liaison with ourselves)
- environmental health issues including control of invasive weeds on non-main river and notification of health risks from blue-green algae
- coastal erosion, and most flood defence matters on ordinary watercourses

Additionally the responsibility for drinking water quality rests with water companies and, in the case of private supplies, local authorities.

6. Glossary

Abstraction – Removal of water from surface or ground water

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

AONB – 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

Aquifer – A layer of water-bearing rock

BAP species – Species listed in the Biodiversity Action Plan drawn up by the UK Biodiversity Steering Group

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

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

CAMR – Chemical and Microbiological Research Institute

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

CoCo – Countryside Commission

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

DERA – Defence Evaluation Research Agency

DETR – Department of the Environment, Transport and the Regions

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

EC – European Community

EN – English Nature

Environmentally Sensitive Area – Designated under the Agriculture Act 1986. Special measures and programmes can be applied to protect or enhance the area by supporting specific agricultural policies

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

Farming and Rural Conservation Agency – 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

GCT – Game Conservancy Trust

Greenfield site – Land on which no urban development has previously taken place, usually understood to be on the periphery of the existing built-up area

Highways Authority – The DETR is responsible for motorways and trunk roads. The County Council is the Highways Authority with responsibility for maintenance, improvement and creation of public highways under the Highways Act

HMSO – Her Majesty's Stationery Office

IFE – Institute of Freshwater Ecology

LAs – Local Authorities

Leachate – Potentially polluting liquid

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

LPAs – Local Planning Authorities

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

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

NETCEN – National Environmental Technology Centre, part of AEA Technology at Culham, Oxon.

National Nature Reserve – Sites owned or leased and managed by English Nature and established as reserves under the National Parks and Access to the Countryside Act 1949.

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

Nutrient – Chemical essential for plant growth, e.g. nitrate, phosphate

OFWAT – Office of Water Services, the Government regulatory agency for the water industry

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

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

PHABSIM – Physical Habitat Simulation system, a methodology that predicts the amount of habitat available to the species and/or life stage under investigation at a given river flow

PPG – Planning Policy Guidance Notes, these provide Government guidance on planning policies

RAMSAR Site – International designation (on wetlands) named after the town in Iran where the text of the convention was agreed. The full title of the Ramsar Convention is the 'Convention on Wetlands of International Importance, especially as Waterfowl Habitat'.

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

Scheduled Ancient Monument – Sites of national importance designated under the Ancient Monuments and Archaeological Areas Act 1979

Section 105's – 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

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

Structure Plan – A statutory document which sets out the County Council's policies and general proposals in respect to development and other use of land in a county

Telemetry – A method of retrieving information (such as river level or rainfall) from a remote site, in many cases via a phone line

Total ammonia – Nitrogen present as ammonia and ammonium ion

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

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

WCA (1981) – Wildlife and Countryside Act 1981

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

WSA – Wessex Salmon Association

WWT – Wiltshire Wildlife Trust

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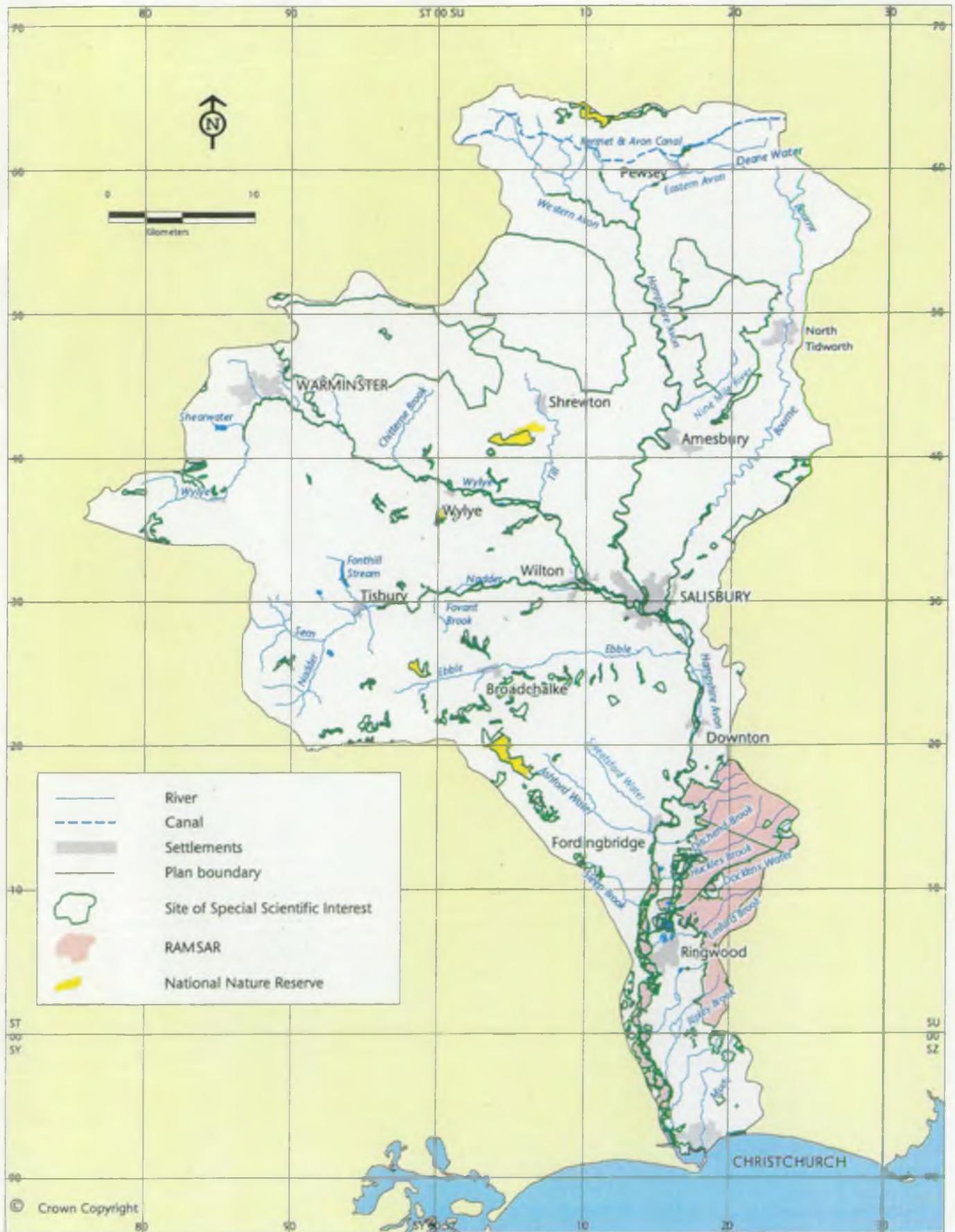
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Map 4 - Designated Conservation Areas



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MANAGEMENT AND CONTACTS:

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

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

0645 333 111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

ENVIRONMENT AGENCY EMERGENCY HOTLINE

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