

A - SOUTH WEST LEAPS



# local environment agency plan

## HAMPSHIRE AVON

PLAN from April 2000 to March 2005



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



## Foreword

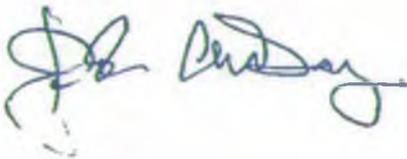
The Hampshire Avon is the longest river with the largest catchment on the south coast. It is important as a drainage channel, fishery, wildlife conservation resource and recreational amenity. The future management of this, one of Europe's few chalk rivers, will be heavily influenced by the work of the Agency, and this is their plan for the river and its tributaries during the next five years.

The Agency is responsible for the quality and quantity of water which flows down the river, for authorising abstraction of water for, among other uses, drinking and irrigation and for discharges into the river from the towns, villages, farms and factories along its course.

The management of the important fresh water fishery, the conservation of important species like the native crayfish, otter and water voles, the rich heritage of water meadows and archaeology, these are all matters in which the Agency has a leading role.

There are wider issues addressed here as well, climate change, the impacts of soil erosion and farming practices and the future provision of drinking water, for example.

Throughout this document though, the emphasis is on partnership, with other statutory bodies, with local authorities, societies and interest groups, but above all, with those who live by, use, visit or just enjoy the area.



**Dr John Day**

**Chairman, South Wessex Area Environment Group of the Environment Agency**

## Vision

The LEAP area contains some of the finest landscape in the country and is home to a magnificent variety of wildlife, in many cases of national and international importance. The central feature is the Hampshire Avon, one of England's most famous rivers immortalised by many in word and picture and a key part of our heritage. Indeed its importance to the landscape and associated wildlife is recognised by its designation as a European Special Area for Conservation and as a Site of Special Scientific Interest over a significant proportion of its length.

The unique nature of the area is important to all those who live and work in it, and to those that visit it for enjoyment. However, all these uses must be balanced to allow the area to retain its special character whilst recognising that it is an evolving area which faces the challenges of economic growth. This inevitably places a number of pressures on the environment ranging from the need for drinking water, land required for development, the disposal of waste generated by society, amenity pressures and the effect of emissions to the atmosphere. All these are essential requirements but their impact on the environment and ways to mitigate them must be considered.

Following extensive consultation the LEAP Plan recognises those places where there is a great deal of work to be done. In some instances this is to reverse past actions or in other instances to maintain and improve the area.

We would like to see the:

- development and achievement of suitable targets to maintain the diversity of wildlife in the area
- maintenance of ecologically acceptable flows in the Hampshire Avon and its tributaries
- maintenance of ecologically acceptable water quality in the Hampshire Avon and its tributaries
- use of innovative techniques to ensure that land use does not damage the environment (especially with regard to pollution, the disposal of waste and the risk of flooding)
- sustainable and balanced use of the area for quiet enjoyment and recreational uses consistent with the internationally important status of the area
- dissemination of environmental information to inform and educate all sectors about the area
- development of existing and new partnerships with interested groups

Some of the actions we will undertake are required of us by statute. In addition we would like to undertake others if our resources permit.

Although the LEAP is not a statutory document it aims to influence other decision-makers and reinforce the Agency message to all those with an interest and a say in environmental management. The LEAP also promotes partnership activities.

Working together will help us to achieve the required targets in a sustainable way for the benefit of all those who use this very special area.

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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 are:

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

### We will do this by:

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

The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management. These duties are described in more detail in Appendix 6.1. While many of these interests are supported by statutory duties, much of the Agency's work is advisory, with the relevant powers resting with other bodies such as local planning authorities.

We are required and guided by Government to use 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. We therefore have to reflect this in the way we work and in the decisions we make.

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

## 1.2 Local Environment Agency Plans

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

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

**1.2.1 LEAP Consultation Draft** – We published a Consultation Draft for the Hampshire Avon in December 1998 which gave an opportunity for external organisations and the public to comment on environmental problems and our work. It outlined issues where we or others need to take action to address problems in the environment.

**1.2.2 LEAP Plan** – We have collated responses to the Consultation Draft (see Section 5) and produced this Plan. Following the consultation period and the outcome of a number of key initiatives several changes have been made to the format of the LEAP which are described in Appendix 6.2.

Each year we will review the progress that has been made with the actions identified in the plan and publish a 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.

## 1.3 The Area Environment Group

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

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

## 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). Towards the coast the river meets the Dorset Stour at Christchurch Harbour; we published a LEAP for the Dorset Stour in 1998. The River Mude also drains to the Harbour.

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

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.

To the north the area is characterised by rolling chalklands and the attractive sheltered valleys of chalk rivers. Much of Salisbury 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 on and around Salisbury Plain. Abandoned water meadows are characteristic of all the river valleys.

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 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.

South of Salisbury the Avon Valley 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.

Important commercial and residential areas are also concentrated in the south of the area around Salisbury, Fordingbridge, Ringwood and Christchurch. Salisbury with its commercial development and flourishing tourism is an important employment centre. The nature of the underlying geology in the Ringwood area has led to the development of a number of sand and gravel extraction pits. The harbour town of Christchurch is an important tourist and recreational centre.

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 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 valley is also characterised by many surviving water meadow systems, which allow us a glimpse of past agricultural practices.

To the north and west a significant proportion of the area is in the North Wessex Downs Area of Outstanding Natural Beauty (AONB) and the Cranborne Chase and West Wiltshire Downs AONB designated by the former Countryside Commission to conserve and enhance the natural beauty of the landscape. The area also contains many sites of local, regional, national and international importance for wildlife, with a range of habitats supporting a variety of species. Several designations apply to parts of the area including a number of County Wildlife Trust Reserves, National Nature Reserves, Sites of Importance for Nature Conservation, Sites of Nature Conservation Interest, Sites of Special Scientific Interest, candidate Special Areas for Conservation and Special Protection Areas.

English Nature has 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). These profiles help set out the nature conservation context of the area.

The most notable habitats of the South Wessex Downs include chalk grassland, chalk rivers and woodland with smaller areas of meadow land and wetland habitats 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 is probably home to one of the most important concentrations of rare, scarce and locally distributed species in the UK. This includes 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 itself supports a very rich aquatic flora and fauna including important examples of *Ranunculus* habitat and several nationally rare invertebrate species. It is also 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. Towards the coast, sheltered brackish mudflats within Christchurch Harbour are of international importance to nature conservation, supporting a rich flora including extensive beds of eelgrass.

### 3. Activity tables

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

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

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

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

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

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

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

For the purposes of this report the action tables in the following sections indicate:

- organisations who may implement the proposed activity
- an estimate of the **cost to the Agency**, where available, or an indication of how the work will be funded; *tbd* indicates costs have yet to be determined
- a proposed timetable for each activity indicating the financial years (April-March) in which the work would be done. A dot indicates in which financial year, or over which period of financial years, work is planned to be undertaken. For example '00 is the financial year April 2000 to March 2001
- an icon linking each action to a number of the themes in *the Environmental Strategy* highlighting the multi-functional nature of much of our work

Please refer to the Glossary (Section 7) for the definition of acronyms and abbreviations and Appendix 6.1 for further information on the Agency's duties, powers and interests.

Following comments received during the public consultation, which are summarised in Section 5, a number of changes have been made to the format of the LEAP to help clarify the issues and actions, and to help the reader concentrate on their area of interest. Appendix 6.2 guides the reader between the LEAP Consultation Draft published in December 1998 and this LEAP Plan.

**The programme consists of work the Agency, with partners, would wish to undertake in the next five years. However, it is likely that due to other priorities and funding availability not all the actions will be undertaken. Therefore, it should be noted that the inclusion of an action in this LEAP Plan does not guarantee that funding will be available for its programmed completion.**

In some cases projects, such as promotion of best practice, improving recreational opportunities and river and habitat restoration, are best achieved in partnership with others.

Where partnerships can be developed, opportunities exist to increase fundraising potential and add value to projects. The Agency is not a grant-giving body, but we can contribute funds when collaborating with others in order to further our objectives. Benefits include:

- access to more resources
- access to complementary skills
- raised environmental awareness
- a more integrated approach by working with others who have a complementary role

Details of some of our partnership work are given in Section 4 and a leaflet, *Who's who in the Environment Agency and interested in partnership funding*, is available from the Blandford office.

Funding for environmental and educational initiatives is also available from a range of other sources, including for example the lottery and the EU LIFE Programme, and is pursued where it can help the Agency and the partnership achieve its objectives.

### 3.1 Enhancing biodiversity

Diversity means *variety* and bio means *life*, so biodiversity means the variety of life. There are three levels at which biodiversity can be considered:

- the variety of communities (ecosystem or habitat diversity)

- the variety of individual species (species diversity)
- the variation within organisms of the same species (genetic diversity)

The concept of enhancing biodiversity applies to the whole of the LEAP area which contains sites of local, national and international importance for wildlife. Some of these sites have been recognised as particularly *special* for their biodiversity and these sites receive certain levels of protection. Principally:

- Ramsar sites (*internationally important wetland sites*)
- Special Areas for Conservation (SAC) nominated under the EC Habitats and Species Directive (*seeks to protect habitats and species of European importance*)
- Special Protection Areas (SPA) classified under the EC Birds Directive (*seeks to protect wild birds and their habitats*)
- Sites of Special Scientific Interest (SSSI)

We will play our full part in contributing towards the appropriate management of these sites as well as those sites that do not have statutory protection (see Section 4.10).

**3.1.1 EC Habitats and Species Directive and EC Birds Directive** – The EC Habitats and Species Directive and the EC Birds Directive place additional responsibilities on us along with our normal conservation duties. The Habitats Directive is transcribed into UK law via the Conservation (Natural Habitats, & c.) Regulations 1994 (SI no. 2716). The aim of the legislation is to contribute to the protection and conservation of certain threatened habitats and species 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 Habitats Regulations will both maintain and restore habitats and species of European interest including the maintenance of a habitat's or species' geographical range and extent. There are ten sites within the plan area (wholly or partly) which will eventually become part of the Natura 2000 network (see Appendix 6.4):

- Chilmark Quarries (candidate SAC)
- Great Yews (candidate SAC)
- New Forest (candidate SAC, SPA, Ramsar site)
- Pewsey Downs (candidate SAC)
- Prescombe Down (candidate SAC)
- Salisbury Plain (candidate SAC, SPA)
- River Avon (candidate SAC)
- Avon Valley (Bickton to Christchurch) (SPA, Ramsar site)
- Component parts of the Dorset Heaths (candidate SAC)
- Component parts of the Dorset Heathlands (SPA, Ramsar site)

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

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

We are also obliged to review all existing authorisations and our flood defence works which may be affecting these sites. Having determined which authorisations and activities are likely to be having an adverse effect on the most important SACs and SPAs the Agency will undertake an appropriate assessment of these authorisations or activities.

We are required to complete Stage 2 of the review procedure, determining which authorisations are likely to be having an adverse effect on priority SACs and SPAs in the light of *Conservation Objectives* which will be set by English Nature. Following European concerns over the UK site lists, English Nature have had to reconsider the network. This has led to delays in the receipt of these *Conservation Objectives*, with knock-on effects to our own timetable.

Priority SACs and SPAs in the LEAP area are the Dorset Heathlands and the River Avon. Stage 3, undertaking appropriate assessments, was due to start on urgent priority SPAs in October 1999, and has been similarly delayed by these unforeseen circumstances.

The process of review has commenced on one heathland site (outside of the Avon catchment) and the River Nadder, trialling the review methodology. *Conservation Objectives* for European sites will now be available by the end of January 2001. When these become available, the Agency will continue with the review programme.

The *Ranunculus* habitat is a qualifying interest for the River Avon candidate SAC and is an important component of the chalk stream environment, providing substrate and food for invertebrates, maintaining stream depth and providing cover for fish (see Section 3.4.1). Low stream flows may have interrupted the normal growth cycle of *Ranunculus* on the Wylde (see Section 3.3.1) and elsewhere, but higher flows in recent years appear to have led to some degree of recovery. Silt deposition from non-point sources (see Section 3.11) and elevated nutrient levels are also of concern (see Section 3.10).

English Nature commissioned the Centre of Aquatic Plant Management to determine the distribution of *Ranunculus* in the upper Avon, Wylde, Nadder, Nine Mile River and Till during 1999 and a report has been published. The centre are also undertaking a three-year study upstream of Coombe Mill looking at the effect of algae on the growth of *Ranunculus* particularly in relation to flow.

Grazing by large flocks of non-breeding swans can also have a major, but localised, impact on *Ranunculus* growth particularly on the River Wylde and the upper Avon. We are working with the Ministry of Agriculture, Fisheries & Food (MAFF) to build up a better picture of the impact of swans, their behaviour and population dynamics as well as monitoring the weed populations in affected areas. Swan damage is one factor impacting on the aquatic *Ranunculus* communities of the upper Avon. Others include low flows (see Section 3.3) and non-point source pollution (see Section 3.11).

We are co-leading a national Research and Development project to investigate *Ranunculus* in chalk streams. The approach will be to collate all available source material, reports, papers, historic records, research, surveys and observations, relating to *Ranunculus* growth in chalk streams. The information will be reviewed to ascertain the performance of *Ranunculus* under polluted environments as well as under near natural conditions. The project is due for completion in August 2000. This project will complement our work under the EC Habitats Directive. We are also the contact point for chalk river habitats under the UK Biodiversity Action Plan (see Section 3.1.4).

Actions	By	Cost	00	01	02	03	04
<p>1.1 Review authorisations as required by the EC Habitats Directive. This includes:</p> <ul style="list-style-type: none"> <li>• Waste management licences</li> <li>• Water abstraction licences</li> <li>• Consents to discharge</li> <li>• Radioactive substances authorisations</li> <li>• Integrated Pollution Control authorisations</li> <li>• Flood defence operations</li> </ul> <p><i>The cost relates to work on the Hampshire Avon cSAC and Dorset Heathlands SPA which are priority sites</i></p> 	Agency	£30k per year	●	●	●	●	●
<p>1.2 Work with all interest groups to assess the relative impacts of non-breeding swans on ranunculus habitats; develop and implement strategies to reduce these impacts where undesirable</p> 	Agency EN MAFF Owners	tbd	●	●	●	●	●
<p>1.3 Monitor weed growth in areas affected by swans on the River Wylde and upper Avon; three stretches are monitored on the Wylde and two stretches on the upper Avon (20 days per year of Agency staff time will be required to complete this action)</p> 	Agency		●	●	●		
<p>1.4 Assist in production of national report <i>Ranunculus</i> in chalk streams</p> 	Agency	£40k	●				

**3.1.2 EU LIFE Project** – The EU LIFE Project aims to establish conservation strategies in selected catchments to safeguard specific interests. English Nature and the Agency have successfully bid to include the Avon candidate SAC. The project aims to establish a framework for achieving sustainable management of the river SAC and will set conservation objectives and develop monitoring procedures.

We will also work with English Nature and others in the context of the EU LIFE Project to identify damaged areas of the river system that would benefit from habitat enhancement. One element of the project is the assessment of a number of river stretches in the LEAP area to determine where the channels are most damaged and where restoration is best targeted (see Section 3.4.1).

The LEAP area borders the New Forest and initiatives planned through the New Forest EU LIFE Project, or raised as issues in the New Forest LEAP (produced by the Southern Region of the Environment Agency) may be relevant to the Hampshire Avon LEAP.

Consultation with English Nature (LIFE Project Officer), the Agency (South West and Southern Region) and the Forestry Commission will be required in order to adopt a common approach within the New Forest Heritage Area.

Actions	By	Cost	00	01	02	03	04
1.5 Play a full role in the Hampshire Avon EU LIFE Project. Specific actions will be incorporated as they are developed. <i>The cost shown is the total Agency contribution to the seven cSAC rivers across the country</i>  	Agency EN	£240k	●	●	●	●	
1.6 Negotiate to adopt common approach to the New Forest streams, taking full account of biodiversity within the New Forest Heritage Area. <i>This action is currently unresourced</i>  	Agency EN FC		●				

**3.1.3 River Avon Site of Special Scientific Interest** – We are working with English Nature to produce the Hampshire Avon SSSI Protocol, a mechanism to assist in streamlining authorisation processes for owners and occupiers. It is a working agreement between English Nature and ourselves and aims to reduce bureaucracy relating to activities requiring authorisation on the river. All owners and occupiers should be aware of the first point of contact (English Nature or the Agency) when proposing to undertake any activity within the river SSSI, identified on the *Operations Likely to Damage (OLDs)* list.

Additionally we must produce a conservation strategy for each river SSSI. The strategy is an overarching document highlighting those issues that potentially impact on the conservation interest, proposing measures to research, monitor and act to reduce impacts. The consenting protocol and conservation strategy are due to be finalised and implemented this year. As the EU LIFE project (see Section 3.1.2) is due to commence in 2000 the strategy will outline the main issues to guide the review of authorisations and activities in the short term as required by the Habitats Regulations (see Section 3.1.1). In the longer term the EU LIFE project will produce a more all-embracing strategy. Consultation will take place on the EU LIFE strategy.

Wiltshire Wildlife Trust, with funding from Wessex Water, has employed a Project Officer to work with English Nature and others to promote the river's conservation and encourage enhancement work where appropriate. The project has been set up as a partnership and we sit on the Steering Group. The *Wessex Chalk Streams Project* will help with explanation of conservation interests, advise on management and seek to identify opportunities to fund appropriate enhancement schemes on the River Avon and its tributaries within Wiltshire. A leaflet is available from the Project Officer.

We will also want to clarify any water resource issues in relation to the Jones' Mill SSSI, following concerns raised by English Nature, liaising where appropriate with individual abstractors.

Actions	By	Cost	00	01	02	03	04
1.7 Produce consenting protocol and conservation strategy for the River Avon Site of Special Scientific Interest. The protocol and strategy will be kept under review. <i>The resource required will be Agency staff time</i>  	Agency EN		●				
1.8 Consider water resource issues with regard to Jones' Mill SSSI (5 days per year of Agency staff time will be required to complete this action)  	Agency EN		●	●			

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

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

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*. The current status and actions on contact habitats and species is summarised below.

**Chalk river habitats** - action on the Avon is summarised in Sections 3.1, 3.3, 3.4, 3.9, 3.10, 3.11 and 3.12. We have recently received the draft Chalk Stream BAP which may have implications for future work. Appropriate actions will be incorporated in the LEAP as they are agreed.

**Water voles** - surveys on the Bourne and Wylde are complete, and partially complete on the Nadder and upper Avon, those on the Ebbles, Nadder and upper Avon will be completed in 2000. Working in partnership with the County Wildlife Trusts, we will be investigating the distribution of the species on the lower Avon, initially through a questionnaire to landowners and occupiers, and then by follow-up visits if required.

**Otters** - several otter holts have been constructed on the Nadder. A national survey of otters is planned for 2000. A survey of road casualties was carried out with the Department of the Environment, Transport and the Regions on the lower Avon, and black spots are being investigated.

**White-clawed crayfish** - the population of native crayfish on the Ebbles found in 1998, is threatened by downstream populations of signal crayfish. Current investigations are looking at options to safeguard the native population by eradication or control of the signal crayfish.

**Depressed river mussel** - the report of the national survey of historic sites is expected shortly.

**Fine-lined pea mussel** - a national project investigating historic sites and extending the area of past surveys is planned for 2000/2001 upstream of Salisbury.

**Southern damselfly** - survey work in 1998 located strong populations of this species on one of the New Forest Streams in the LEAP area. Suitable habitat management should occur through the EU LIFE project (see Section 3.1.2). It is possible this species occurs elsewhere in the Avon valley.

**Eutrophic lakes** - Blashford Lakes, Fonthill Lake and a number of other lakes in the LEAP area constitute this habitat. The implications of the UK Phase II Action Plan for this habitat are being explored.

The table in Appendix 6.3 lists all those habitats and species in the LEAP area for which the Agency has been assigned actions in addition to the contact habitats and species. These have been taken from existing BAPs which include:

- the UK BAP's South West and South East Regional Audits
- draft BAPs for Hampshire, Dorset and Wiltshire
- plans for specific habitats and species eg floodplain grazing marsh and the Southern damselfly

The above documents also list the other numerous BAP habitats and species for which the Agency has no assigned actions, but which are found in the area. Liaison and collaborative work with a wide variety of partners is central to the delivery of biodiversity on the ground, for example, the Avon Valley Liaison Group (see Section 4.10) is preparing a BAP for the lower Avon drawn from all relevant plans. Draft targets are listed in Appendix 6.5, on which we would welcome comments. Agreed actions will be incorporated into future LEAP Annual Reviews (see Section 1.2.2) as appropriate.

We have also been involved in work on *habitats and species of conservation concern*:

**Floodplain grazing marsh** - the collation of data and improvement in recording methods has continued to demonstrate the decline of breeding wader birds (snipe, redshank and lapwing) and wintering wildfowl on the Avon. Many of these species are now at critical levels and require urgent action to stabilise their declining populations. Support comes through the Environmentally Sensitive Area and Countryside Stewardship schemes (see Section 4.8), water level management plans (see Section 3.5.1) and the review of flood defence activities. The decline in population of breeding waders indicates the state of this habitat and in particular the SPA (see Section 3.1.1).

The Yellow Wagtail has declined dramatically as a breeding species in the floodplain, and is now found only at a few sites. The reasons are unknown, but may, in part, be due to the widespread use of avermectins in animal husbandry. Yellow Wagtail populations in the Avon valley will be monitored.

**Ephemeral ponds and wet disturbed habitats** - a suite of plants and invertebrates including chamomile, pillwort, pennyroyal, mudwort and brown galingale, tadpole shrimp, scarce blue-tailed damselfly and white-legged damselfly, depend on these habitats. Where they are known to occur, we will ensure their requirements are taken into account in our work.

**Round-mouthed snail** - we have undertaken a survey with English Nature for this species on the lower Avon, in relation to water level management plans (see Section 3.5.1). A report is due shortly.

**Salmon, brook and river lamprey and bullheads** - the Avon is home to a number of fish species listed under the EC Habitats Directive as qualifying interests (see Section 3.1.1). Atlantic salmon, bullhead, brook lamprey and sea lamprey are found in the Avon. Allis shad is also listed under the UK BAP and it is probably an occasional visitor to Christchurch Harbour, but the use it makes of the harbour and rivers is unknown. It is a further species that would require specific consideration if a management plan were drawn up for Christchurch Harbour (see Section 3.15).

Nationally, Biodiversity Action Plans for the protection and enhancement of these species will be prepared; until that time we will adopt best practice for their protection based on our current knowledge of their requirements. In the case of Atlantic salmon, action plans are already being produced for the principle rivers in England and Wales, including the Avon (see Section 3.4.2).

**Tentacled lagoon worm** - is not a priority BAP species but occurs in Christchurch Harbour, and is protected under the Wildlife and Countryside Act. Its protection needs to be considered if a management plan for the Harbour were drawn up (see Section 3.15).

**Starlet sea anemone** - this species may occur in Christchurch Harbour but its occurrence needs to be confirmed. If present, the Agency is required to protect the species when undertaking work.

**Medicinal leech** - from recent surveys this species occurs within the New Forest EU LIFE Project area. The Agency should ensure sites are appropriately managed; this will be picked up in discussions on the EU LIFE Project in the New Forest (see Section 3.1.2).

At a local level, many issues on biodiversity are dealt with through routine work, liaison with a wide variety of partners, and progress on initiatives to meet wider objectives. Specific actions for biodiversity are listed below, but reference should also be made to Sections 3.1, 3.2, 3.4, 3.5, 3.10, 3.11 and 3.12. The Avon Valley Liaison

Group (see Section 4.10) has also agreed a monitoring strategy for the Avon.

Actions	By	Cost	00	01	02	03	04
1.9 Continue to support Dorset, Wiltshire and Hampshire County Biodiversity projects for the following habitats and species: floodplain grazing marsh, fen meadows, chalk rivers, reedbeds, urban rivers, great crested newts, otters and water voles 	Agency Partners	£10k per year	●	●	●		
1.10 Prepare ecological BAP targets for key habitats and species on the Avon 	Agency Partners	£1k per year	●	●			

### Chalk rivers and associated species

Actions	By	Cost	00	01	02	03	04
1.11 Implement actions from the South Wessex Crayfish Species Action Plan and review annually. <i>The resource required will be Agency staff time</i> 	Agency		●	●	●	●	●
1.12 Monitor crayfish populations on the Ebble and investigate options to safeguard native species 	Agency	£1.5k	●				
1.13 Undertake water vole survey on the lower Avon. <i>The resource required will be Agency staff time</i> 	WTs		●				
1.14 Identify black spots for otter crossings and implement programme of road improvement and underpasses to provide safe access points when rivers are in flood. <i>This action is currently unresourced</i>  	Agency WTs	£7.5k for the area	●				
1.15 Determine water quality objectives for standing and running waters that will sustain otters. <i>This is a national action and has yet to be resolved</i>  	Agency						
1.16 Increase number of otter holt sites where appropriate on all flood defence schemes. <i>The resources required will depend on the number of flood defence schemes</i>  	Agency		●	●	●	●	●

Actions	By	Cost	00	01	02	03	04
1.17 Support national Ph.D project to research ecology and identify precise habitat requirements of the southern damselfly and contribute towards habitat management where required. <i>Any recommendations will be implemented locally as appropriate</i> 	Agency	tbd	●				
1.18 Ensure New Forest LIFE Project covers Avon site management for southern damselfly (see Action 1.6)							
1.19 Survey for potential southern damselfly sites in Hampshire Avon Catchment 	Agency EN BAP Grp	tbd				●	
1.20 Review flood defence maintenance works in the light of national research and survey findings to safeguard populations of the depressed river mussel  	Agency WWT	tbd		●			
1.21 Review flood defence maintenance works in the light of national research and survey findings to safeguard populations of the fine-lined pea mussel  	Agency WWT	tbd		●	●		

**Coastal and floodplain grazing marsh and associated species**

Actions	By	Cost	00	01	02	03	04
1.22 Produce water level management plans and implement in floodplain of the lower Avon (see Section 3.5.1)							
1.23 Survey to determine actual resource and condition of coastal and floodplain grazing marsh. <i>This action is currently unresourced</i> 	Agency Partners	£5k	●				
1.24 Review river management practices to take into account requirements of the black bog ant where it occurs  	Agency	tbd		●			

**Reedbed and associated species**

Actions	By	Cost	00	01	02	03	04
1.25 Prepare and co-ordinate strategy for reedbed, requires sites to be identified. <i>The Blashford lakes complex or Avon Common provides the best opportunity to fulfill this target in the Avon Valley</i> 	Agency Partners	tbd			●	●	
1.26 Define appropriate water quality standards and establish monitoring regime if appropriate. <i>This is a national action and has yet to be resolved</i>  	Agency	tbd					

## Estuaries and associated species

Actions	By	Cost	00	01	02	03	04
1.27 Initiate a five-year general quality assessment of macroinvertebrates. <i>This action is currently unresourced</i>  	Agency	tbd					
1.28 Research and implement appropriate standards of water quality to maintain and improve diversity in estuaries. <i>This is a national action and has yet to be resolved</i>  	Agency	tbd					
1.29 Establish estuary-wide management plans with biodiversity targets (see Section 3.15)							

## Standing open water and associated species

Actions	By	Cost	00	01	02	03	04
1.30 Define ecological water quality standards, monitor and enforce. <i>This is a national action and has yet to be resolved</i>  	Agency	tbd					
1.31 Collate data and undertake field survey of Great Crested Newt sites 	Agency WTs Owners	£2k			●	●	

## Urban watercourses and associated species

Actions	By	Cost	00	01	02	03	04
1.32 Encourage community action by supporting Salisbury Wildlife Project Officer, the Dorset Urban Biodiversity Project Officer and the Avon Community Project Officer (two projects per year). <i>This action is currently unresourced</i> 	Agency Partners	£2.5k per year	●	●	●	●	●

**3.1.5 Chalk stream malaise** – The condition *Chalk Stream Malaise* reported by anglers in recent years refers to a deterioration of conditions seen in the Hampshire Avon and its tributaries. The condition is characterised by a number of symptoms including:

- increased water turbidity
- siltation of river bed gravels (see Sections 3.4 and 3.11)
- poor aquatic plant growth (see Section 3.1.1)
- increased algae growth (see Sections 3.1.1 and 3.10)
- reduced breeding success for trout (see Section 3.4.1)
- reduced abundance of some upwing flies (see Section 3.4.1)

and is thought to be due to a number of factors including low flows (see Section 3.3), with recent drought periods having compounded the effects of abstraction on some rivers and non-point source pollution. Our *Landcare* initiative is taking an innovative approach towards the problem of non-point source pollution (see Section 3.11.1).

**3.1.6 Invasive plants** – Some invasive plant species occur in the LEAP area including Giant Hogweed, Himalayan Balsam and American Skunk Cabbage. Nationally, the Agency is formulating a policy towards the control of these species in partnership with others. In the interim we would welcome any records of invasive plants along watercourses.

Actions	By	Cost	00	01	02	03	04
1.33 Assist in collating records of invasive plants along rivers. <i>The resource required will be Agency staff time</i> 	Agency NGOs		●	●			
1.34 Formulate strategy for invasive plants. <i>This is a national action and will be implemented locally as appropriate</i> 	Agency	tbd		●			

**3.1.7 River Nadder assets survey** – River Habitat Survey (RHS) is a system developed by the Agency for assessing the character and quality of rivers based on their physical structure. It has four distinct components:

- a standard method for field survey
- a database with over 5000 reference sites
- a suite of methods for assessing habitat quality
- a method for describing the extent of artificial channel modification

RHS concentrated on the Avon catchment in 1999, but the results have yet to be analysed. In addition, a *Natural Asset Survey* of the Nadder was produced which included a detailed assessment of the RHS data, providing a record of the landscape, habitat, geomorphology, wildlife and recreational use of the river and its catchment. The main issues relate to land use change (see Sections 3.5 and 3.11), siltation (see Section 3.11), landscape improvements and limited access improvements (see Section 3.15). We will have to work with other organisations, principally MAFF, English Nature and local authorities, to implement any measures.

Actions	By	Cost	00	01	02	03	04
1.35 Review RHS data for the LEAP area, including winterbournes. <i>The resource required will be Agency staff time</i>  	Agency		●	●			
1.36 Publish habitat target for the LEAP area. <i>This action is currently unresourced</i>  	Agency Partners			●	●	●	
1.37 Adopt and implement Nadder Asset Survey recommendations as a partnership project. <i>This action is currently unresourced</i>  	LAs MAFF EN		●	●	●		
1.38 Agree methodology for future natural asset surveys  	Agency	tbd	●	●			

## 3.2 Securing future water supplies

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 public and private water supplies, agriculture (including aquaculture) and industry. With a few exceptions abstraction of water to supply these needs is licensed by the Agency with careful regard to environmental needs. We will be reviewing over 500 abstraction licences in the LEAP area as required by the Habitats Regulations (see Section 3.1.1).

**3.2.1 Public water supplies** – Wessex Water Services and Bournemouth and West Hampshire Water Company currently meet the majority of demand for public water supply from a number of sources dominated by groundwater north of Salisbury and three direct river abstractions south of Salisbury. Cholderton and District Water Company supply approximately 2000 people in the Cholderton area. Thames Water Utilities are licensed to supply Tidworth Camp as part of a public private partnership.

Water resources planning for all three water companies and the Agency is based on water resource zones. They can cover large geographic areas extending over and beyond administrative and natural boundaries. The zones which cover the LEAP area are:

- Wessex Water: most of the East Wiltshire Zone and part of their Northern Zone
- Bournemouth and West Hampshire Water: there are four zones which have part of their area lying within the LEAP area
- Cholderton and District Water Company: operates only one resource zone

Each of the zones provide an integrated network of sources, often combining groundwater and surface water abstractions. Both Wessex Water and Bournemouth and West Hampshire Water Company pump some of the water they abstract to outside the LEAP area, either for use within the same resource zone, or in neighbouring zones.

The availability of water resources is an increasingly important issue across England and Wales. Whilst the Government has said that it does not expect water resources to be a reason for development proposals being rejected, the provision of adequate water supplies could have an influence on the timing of developments. The

Agency contributes to Regional Planning Guidance and comments on county and district plans, and individual planning applications (see Section 4.2) with respect to water resources and water efficiency. However, we can only comment on water resources in general as the specifics depend on which sources the relevant water company would plan to use to supply the development. We would wish to see water companies added to the land use planning list of statutory consultees.

Before there is any further development of new resources for public water supply we would have to be satisfied that the water companies have implemented a range of appropriate demand management and resource management options including reducing their leakage to an acceptable level. Demand management involves a number of initiatives including metering; all new domestic properties are metered and from 1 April 2000 all customers can have their homes fitted with a meter 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. They prepare *Water Efficiency Plans* which set out how they aim to achieve this and the ways in which both domestic and business customers can save water. Information on promoting water efficiency is available from the water companies.

Water companies were recently required by the Office of Water Services (OFWAT) to revise their demand forecasts, review their resource availability and consider any potential resource options to meet any forecast deficits up to 2010. Each company also prepared and submitted water resources plans to the Agency in March 1999. They included demand forecasts compared with available resources up to 2025. In June 1999, we responded to the Government on these plans in the report, *Planning Public Water Supplies* (see Section 4.5). We judged the plans submitted by all three companies within the LEAP area to be acceptable.

At the end of November 1999, the Director General of OFWAT announced his *Determination of Prices*, setting down what the water companies may charge and where their expenditure will be allocated for the five years to 2005 (see Section 4.5). The proposals and associated expenditure submitted by Bournemouth and West Hampshire Water and Cholderton and District Water were approved by OFWAT.

The determination did not include funding for the remedial scheme to address low flow problems on the River Wylfe (see Section 3.3.1). The company submitted this scheme as a consequence of a requirement from the Agency that action should be taken before 2005 to revoke the Chitterne borehole licence. The Minister for the Environment, while accepting OFWAT advice that the most cost-effective remedy deserved further study, announced that a scheme will need to go ahead to address the environmental problems on the Wylfe. Officials of the Department of the Environment, Transport and the Regions have been charged by the Minister to conduct a review of the options and to involve the Agency and other organisations.

Both the national and the regional Water Resources Development Strategy are being revised with publication scheduled for December 2000. The strategies will seek to build on earlier strategies produced by the National Rivers Authority, on recent water company water resources plans and the responses received to the consultation carried out over the three months to the end of January 2000.

Actions	By	Cost	00	01	02	03	04
2.1 Revise the South West Region's Water Resources Development Strategy 	Agency	£60k	●	●			

**3.2.2 Private water supplies** – We will continue to monitor direct abstractions by individuals, agriculture and industry and have regard to the net take-up of licensed volume and its effect, including any real or potential local environmental problems. Future abstraction needs will continue to be addressed through the abstraction licensing system.

The Abstraction Licensing Review was published in December 1998. After consultation, the Government gave

details of its decisions in *Taking Water Responsibly*, published in March 1999 by the Department of the Environment, Transport and the Regions. The full nature and impact of changes will not be confirmed until the final papers are approved by Parliament. We will need to implement any changes that arise from this process and amend licensing policies as appropriate.

However, one proposal that is currently being consulted on is the development of Catchment Abstraction Management Strategies (CAMS). These will provide the opportunity for those with an interest in water management to contribute to those strategies relevant to their interests. CAMS will allow the needs of the river and the associated water environment, as well as the needs of users of the river, to be balanced in a more flexible and open way. They will set out a strategy for achieving the sustainable management of water resources within a catchment or group of catchments. Further information is available on the Agency's Internet site.

### 3.3 Impact of public water supply abstractions on the Hampshire Avon

**3.3.1 River Wylfe and tributaries** – Following a broad review of the effect of abstraction on river flow and groundwater levels in the upper Avon in the early 1990s, it was concluded that the River Wylfe was in most need of more detailed study. The subsequent study concluded that a reduction in the volume of groundwater abstraction would significantly improve flows in the Wylfe, the Till and the Chitterne Brook.

Abstraction licence reductions in the Wylfe catchment will be targeted at the Chitterne borehole which has been demonstrated to have a serious effect on the Chitterne Brook and also the River Till. The Agency included in its submission for the National Environment Programme, part of the Office of Water Services (OFWAT) review (see Section 4.5), a proposal to reduce abstraction at Chitterne by 20 Mld. Funding for this was not included in the final OFWAT determination (see Section 3.2.1).

Other revisions to management practices in the upper Wylfe catchment are under discussion with Wessex Water. Improvements to the conditions in the Deverills may be possible by greater use of the Codford borehole rather than the borehole at Brixton Deverill. These improvements form part of the environmental obligations the Agency would wish to see imposed on the water company during the programme referred to as AMP3 (see Section 4.5). These obligations are principally driven by the Habitats Regulations (see Section 3.1.1).

An ecological study undertaken in 1999 suggested that the overall ecology of the river Wylfe and tributaries is recovering from the impact of drought and low flows during the early and middle 1990s. Further work is proposed in order to confirm this, including invertebrate studies in the whole catchment and macrophyte studies in the upper Wylfe. Also, as a result of the study, a review of the existing stream support arrangements in the Chitterne Brook is proposed. This review will need to account for the significant improvement in flows on the Chitterne Brook and River Till that would accrue from a 20 Mld reduction in abstraction at Chitterne.

Stream augmentation trials on the River Till proved disappointing and further trials have been postponed. If revocation of the Chitterne borehole licence is included in the programme known as AMP3 (see Sections 3.2 and 4.5), then stream support on the River Till would be considered as an *emergency only* option with no further development work planned. Similarly the construction of a flow gauging station at Berwick St James has been abandoned, its prime purpose would have been to trigger this stream support.

When completed the Wylfe Physical Habitat Simulation (PHABSIM) study will be used to help assess the impact of abstraction on salmonid habitat. A study into the relationship between flow and angling quality on the Wylfe is also ongoing, and the results will be considered along with those from the PHABSIM studies and other ecological studies, in the review of management practices in the catchment, particularly the use of stream support.

Actions	By	Cost	00	01	02	03	04
3.1 Participate in DETR study to find a cost-effective solution to reduce abstraction at Chitterne by 20 MI/d by 2005 	WWSL Agency	N/A	●	●			
3.2 Agree changes to water management practices which will improve conditions in the upper Wylde 	Agency WWSL	£1k	●	●			
3.3 Monitor environmental benefits from amended arrangements in the upper Wylde. <i>The cost given is for the first year of monitoring</i>  	Agency	£6k		●	●	●	●
3.4 Review the results of PHABSIM, Angling Survey and ecological studies and consider their implications for the review of water management practices in the upper Wylde and Chitterne Brook   	Agency	£3k	●	●	●		

**3.3.2 Bourne and Nine Mile River** – The Bourne and Nine Mile River are also perceived to be at risk from groundwater abstractions and were recommended for further detailed investigation following the review of abstraction in the upper Avon. A detailed study is currently being carried out to investigate the effect of groundwater abstractions on river flows and habitat. The first stage of the study, which will be completed in June 2000, involves data collation and environmental monitoring as well as conceptual modelling of the hydrology and hydrogeology of both catchments. Depending upon the results of the first stage, further investigations including detailed numerical modelling of the catchment may be undertaken. This study is included in the programme known as AMP3 (see Section 4.5).

As part of the investigation consideration is being given to improve flow measurement in the catchment. This includes construction of new continuous flow measurement facilities, or gauging stations, on the Nine Mile River and River Bourne, and modifications to, or a replacement of, the existing gauging station at Laverstock.

Thames Water Utilities Ltd were granted a time-limited licence in 1998 to supply Tidworth as part of a Public Private Partnership. The time-limited licence will enable a review of the licence conditions in the light of the investigations on the River Bourne and Nine Mile River catchments.

Actions	By	Cost	00	01	02	03	04
3.5 Assess the environmental impacts of abstractions from the Bourne and Nine Mile River catchments and formulate any necessary practical mitigation measures and implement by 2004 	Agency	£600k	●	●	●	●	●
3.6 Construct new gauging stations on the Nine Mile River and River Bourne, including review of existing facility at Laverstock 	Agency	£328k	●	●	●	●	
3.7 Assess the impact of the Thames Water abstraction at Tidworth and review the time-limited licence 	Agency	£20k	●	●	●	●	●

**3.3.3 Fonthill Stream** – The review of abstraction in the upper Avon suggested there had been a reduction in the flow of the Fonthill Stream, and an extension to the period of no flow in the winterbourne section by an extra month in an average year. The report recommended that if abstraction from the Fonthill Bishop pumping station increased within its licensed quantity, then the impact of abstraction on the Fonthill Stream should be reconsidered.

Invertebrate monitoring was carried out in 1999 and the data is currently being analysed. Monitoring of streamflows and groundwater levels has continued and will be analysed during 2000. The analysis will determine whether the current monitoring is sufficient to assess the impact of the abstraction on the stream. Further detailed investigation may then be required in the light of this initial assessment. We would welcome the co-operation of riparian owners and others with an interest in the watercourse. This study is also included in the programme known as AMP3 (see Section 4.5).

Actions	By	Cost	00	01	02	03	04
3.8 Investigate the environmental impacts of abstractions in the Fonthill Brook catchment 	Agency	£20k	●	●			

### 3.4 Constraints on fish populations

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 although wild populations are said to have declined with anglers reporting the condition of chalk stream malaise (see Section 3.1.5).

**3.4.1 Brown trout** – The *Ranunculus* habitat provides food for invertebrates and cover for fish particularly brown trout. Anglers have also reported its sporadic growth in recent years, poor aquatic plant growth being one of the symptoms of chalk stream malaise (see Section 3.1.5). Initiatives in relation to *Ranunculus* are discussed in Section 3.1.1.

The poor recruitment success of brown trout reported may be attributable to deterioration in spawning and incubation success in the river, but the behaviour and genetic backgrounds of stocked fish may also play a part. Gravel improvement work is undertaken in co-operation with fishery keepers and we have gravel-cleaning

equipment available for loan.

A study initiated by the Agency and compiled by the Institute of Freshwater Ecology, evaluating the factors responsible for population changes in some upwing flies in recent years, has been widely distributed to interested parties. We also undertook a macroinvertebrate study of the upper Avon comparing current population data from historical surveys and concluded that significant changes in diversity were not evident. Efforts are now focussing on obtaining historical information from anglers, and others, on the diversity (presence or absence of different species) and abundance (numbers per species) of upwing flies. A questionnaire will be used and the results compared with other chalk river catchments in the South Wessex area.

The majority of trout fisheries on the upper Avon and tributaries have been reliant on stocking with farmed trout for their viability for many years. Large numbers of hatchery-reared fish are stocked each year including some which are larger than those which a chalkstream would naturally produce. Two fisheries on the Nadder are stocked with Rainbow trout, a territorial exotic species. Our Advisory Committees have recommended that we should use persuasion to end Rainbow trout stocking but the fishery interests involved argue that it is necessary to maintain the viability of the fisheries, given the particular characteristics of the Nadder.

Future stocking policy will be guided by our National Trout Strategy which is currently in development and will take account of our responsibilities for both fisheries and conservation and help to guide us in achieving suitably balanced and sustainable approaches. Consultation will take place on this strategy.

In collaboration with angling organisations and riparian owners a number of habitat enhancement projects have been carried out on the upper Avon and tributaries which should significantly enhance the habitat for both fisheries and other wildlife. Some projects have promoted the value of fencing, particularly where there are high cattle and sheep densities resulting in significant bankside damage. However, fencing is considered as one of a range of options and is not always the best solution to meet a wide range of species requirements.

Two collaborative projects have recently been completed, one upstream of Salisbury and one downstream at Hale. The Netton project provides angling facilities for wheelchair-bound anglers as well as providing access to wheelchair-bound patients from the spinal injuries unit at Odstock Hospital. The river also benefited from habitat improvements.

The section of river below Stratford-sub-Castle has also received attention in terms of restoring old silted channels and creating five new gravel riffles for improving the habitat of both coarse (see Section 3.4.3) and salmonid fish.

The large number of habitat enhancement and Research and Development projects have and will continue to provide useful information into the ecological value of the enhancement projects from which it is envisaged that an overall strategy can be developed. Locations in the LEAP area which would benefit from habitat enhancement will be assessed as part of the EU LIFE programme (see Section 3.1.2).

As part of the Millennium Festival Partnership between the Agency and the Heritage Lottery Fund a project to enhance the riverine habitat in the centre of Salisbury will be carried out in collaboration with Salisbury District Council and the Wiltshire Local Agenda 21 group.

A PHABSIM study and angling quality survey have also been undertaken as part of the Wylde low flow study (see Section 3.3.1).

Actions	By	Cost	00	01	02	03	04
4.1 Maintain and loan gravel cleaning gear to fisheries interests  	Agency	£0.5k per year	●	●	●	●	
4.2 Undertake survey of anglers to obtain historical information on upwing flies 	Agency	£1k	●				
4.3 Implement National Trout Strategy. <i>This is a national initiative and recommendations will be implemented locally when the strategy is complete</i>  	Agency	tbd	●	●			
4.4 Develop overall strategy for river habitat enhancements   	Agency EN	tbd	●	●	●	●	●
4.5 Chalk stream habitat improvement. <i>Further work as funding allows and depending upon the outcome of Action 4.4</i>  	Agency Others	tbd	●	●	●	●	●
4.6 Participate in Millennium Festival Partnership at Salisbury   	Agency Partners	£15k	●				

**3.4.2 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 for ten years (1989-1998 inclusive).

The decline in numbers of salmon on the Avon which took place during the late 1980s and early 1990s affected all sea ages. Before that, there had been a prolonged decline, starting in the early 40s of 3 sea winter and 4 sea winter fish, which are the very large salmon.

In response we produced the *Hampshire Avon Salmon Action Plan* which highlights what are considered to be the major constraints acting on the salmon population. Following consultation the final plan was published in 1997. Further information on the Salmon Action Plan is available from our Blandford Office. The proposed actions, which if taken forward, should enable the stock to grow to a level at which it can play its proper part in the river's ecology and the local economy. This will also be dependent on climatic and oceanic conditions over the next few years. The Salmon Action Plan addresses:

- improved monitoring of stocks
- the control of mortality in the fishery
- improving key areas of habitat including the spawning medium
- obstructions to migration
- reduced flows

- channel morphology

Actions to address these issues will also benefit other species of fish and other flora and fauna of the river.

The abstractions at Matchams and Knapp Mill by Bournemouth and West Hampshire Water Company were identified by the Agency as a matter to be investigated during the programme referred to as AMP3 (see Section 4.5). The Office of Water Services approved company expenditure for this purpose in its final determination of prices. The grounds for this relate to the findings of a report by Dr David Solomon on the flow needs of migratory salmon. Work is proceeding to design and trial an improved fish-counting arrangement for use in the investigation of this problem.

Dr Solomon's later work on migration conditions and potential obstacles to migration highlighted the need to investigate the potential obstruction at Breamore Mill under low autumn flow conditions. The Agency are investigating the possible installation of a fish pass.

Since January 1999, we have been able to enforce legislation under Section 14 of the Salmon and Freshwater Fisheries Act (1975) (amended by the Environment Act (1995)), regarding the screening of fish farms and other water utilities. We will be ensuring that adequate devices are in place, which should prevent the entrapment of wild salmonids and prevent the escape of farmed fish. All the qualifying sites in the area have been inspected and some recommendations made. Annual reviews of these sites will be undertaken. A small number of issues at low priority sites on the Avon system are still to be resolved.

There are increasing concerns about biologically active substances that can affect all fish species, particularly via their endocrine systems, and that are active at very low concentrations. We continue to monitor the situation and will undertake investigations where appropriate.

Actions	By	Cost	00	01	02	03	04
4.7 Implement Hampshire Avon Salmon Action Plan. <i>Costs for individual actions are given in the Salmon Action Plan</i>  	Agency Partners		●	●	●	●	●
4.8 Design and trial improved fish counting arrangements on the lower Avon to investigate the flow needs of salmon at Knapp Mill 	Agency	£20k	●				
4.9 Undertake feasibility study of fish pass construction at Breamore Mill 	Agency	£8k	●	●			

**3.4.3 Coarse fish** – 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, Wylde, Nadder and Bourne. Stillwater coarse fishing takes place at several disused gravel pits located throughout the area.

In general coarse fishing is of a consistently high quality and we undertake surveys of the coarse fish populations downstream of Salisbury on a regular basis. If and when anomalies are detected, for example the lack of small fish between Downton and Burgate, we have undertaken and continue to undertake work to gain an understanding of the underlying causes. Some anglers of longer experience on the river report a decline in numbers predating the routine monitoring begun in 1987, and that this also applies to the coarse fishery upstream of Salisbury.

Of the factors controlling coarse fish populations we believe that physical habitat, the availability of suitable

habitats for critical life stages and barriers to fish movement may be the most important factors on the Hampshire Avon. We are involved in the Agency's national Research and Development programme, *Factors Affecting Coarse Fish Recruitment in Rivers*, and we will also continue to carry out physical habitat improvement work where appropriate to enhance coarse fish stocks, for example; habitat enhancement of side channels and main river riffle areas at Hale, and riffle creation at five areas at Stratford-sub-Castle (see Section 3.4.1). Our growing knowledge of habitat needs, particularly for younger fish will feed into this work and into water level management plans and other floodplain work (see Section 3.5). Major changes in land use and water levels occurred in the valley after the war and it may be that these link to trends in stocks reported by some older anglers.

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	By	Cost	00	01	02	03	04
4.10 Undertake coarse fish survey downstream of Salisbury 	Agency	£20k			●		
4.11 Investigate any anomalies in distribution and take action with respect to deleterious factors. <i>The cost will depend upon the investigations required; during the last financial year (1999/2000) £5k was spent investigating anomalies between Downton and Fordingbridge</i> 	Agency		●	●	●	●	●
4.12 Enhance key areas of coarse fish habitat. <i>Work is undertaken as resources allow. If resources are made available this year work will concentrate on the stretch between Downton and Fordingbridge</i>  	Agency Partners		●	●	●	●	●
4.13 Contribute to national Research and Development on coarse fish recruitment 	Agency	tbd	●	●	●		
4.14 Undertake eel-trap inspections at various locations (most eel-traps are downstream of Salisbury) 	Agency	£0.5k per year	●	●	●	●	●

### 3.5 Loss and decline in the value of the floodplain habitat

**3.5.1 Water level management plans** – The maintenance of the natural flow is critical to conserve the geomorphological characteristics and associated communities of rivers. In addition, some stretches have associated wetlands, which are dependent on the water level regime being maintained. The raising and improved control of water levels is often seen as a direct way of improving the wetland interest of an area. In particular, higher water levels in spring and early summer are of value to breeding wetland birds.

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

The plans have been developed to integrate all our functions to deliver more sustainable water level management, and to focus on actions where landowners are keen to co-operate to obtain environmental improvements. Water level management plans also help the Agency meet its obligations under the Habitats Regulations (see Section 3.1.1) in reviewing operational work in respect of the Special Protection Area. They are a crucial mechanism in reversing the decline in grazing marsh habitat, breeding waders and wintering wildfowl (see Section 3.1).

A strategic water level management plan for the lower Avon has been developed following initial investigation of site suitability during 1995 and 1996. Until September 1999, plans were progressed on a sample basis. Monitoring of the grassland communities and breeding wading birds is carried out alongside trial site implementation, both to assess the impact of raised water levels on existing interests and to monitor ecological improvements. The monitoring has indicated that breeding waders are restricted, in the main, to raised water level areas. Completed plans include those for:

- Porton Meadows
- Lower Woodford
- Britford/East Harnham (part)
- North Breamore
- Bisterne
- Avon Causeway

Investigations are being undertaken at Ibsley and Avon Tyrell to identify ways to improve water level control without adversely impacting on fish populations, and where possible enhancing them.

In 1999, new Ministry of Agriculture, Fisheries and Food (MAFF) targets required the Agency to produce water level management plans for all Natura 2000 sites (see Section 3.1.1) by March 2000 and all other Sites of Special Scientific Interest by December 2000. Consequently, a new approach has been adopted, splitting the floodplain into hydrological units: a plan will be prepared for each, defining conservation aims, constraints, hydrology and management objectives.

The main mechanism for implementing water level management plans is through one of the agri-environmental schemes on offer in the LEAP area; for the Avon and Ebble, this is the Environmentally Sensitive Area scheme (see Section 4.8). The review of the Habitat Scheme (see Section 4.8) resulted in elements of it being incorporated into the Countryside Stewardship scheme (see Section 4.8), which now applies to the remainder of the area. In addition, MAFF have set targets for entry into the Environmentally Sensitive Area scheme. Whilst still in draft these targets are challenging and will require the support of many parties, including the Agency.

Partial restoration of water meadows may be appropriate in some locations where the wildlife interest could be enhanced by the reopening of carefully selected disused channels. We would wish to be consulted at the early stages of any proposals (see Section 3.14).

Actions	By	Cost	00	01	02	03	04
5.1 Prepare water level management plans for all hydrological units in the lower Avon SPA 	Agency Partners	£85k	●				
5.2 Prepare water level management plan for River Avon candidate SAC by December 2000 	Agency Partners		●				
5.3 Investigate use of side channels by coarse fish species at Ibsley and Avon Tyrell in support of water level control measures; monitoring is ongoing. <i>The National Coarse Fish Centre are contributing £2k of the £6k</i> 	Agency	£6k per year	●	●	●		
5.4 Undertake monitoring of key habitats and species to progress water level management plans 	Agency	£10k per year	●	●	●	●	●
5.5 Prepare a review and implementation plan for all water level management plans by March 2001 	Agency	£20k per year	●	●			

**3.5.2 Maintaining rivers and flood defences** – We also 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. Using the *Flood Defence Management Manual* methodology the Agency has set targets to justify and rank flood defence maintenance work; all works within the LEAP area are ranked and justified ahead of the Agency target of 100 % justification before April 2001.

Currently we are at the early stages of investigations on low-lying areas at risk from flooding in Salisbury at Riverside Park/Town Centre and Harnham. Once proposals are available we will commence public consultation on potential schemes during 2003 and 2004. However, it is recognised that with regards to the area around the cathedral, considerable thought will be needed if an acceptable solution is to be found.

Substantial works have been carried out at Downton since the war which have reduced the risk of flooding. However, the flood risk is still too high when compared with national standards. In addition, one of the predictions of global warming (see Section 3.16) is increased storminess and changes in rainfall with the likelihood that Downton will flood more frequently and severely. However, we do not believe that the answer is solely more flood defence works but may include floodplain and water level management.

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. Habitat and particularly coarse fish habitat (see Section 3.4.3) improvements will also be undertaken as part of the project. If resources allow, improvement works to river channel capacity will also be undertaken.

This is part of the water level management plan initiative (see Section 3.5.1) and works are ongoing. There is also the potential for the restoration of floodplain grassland and breeding wader habitat (see Section 3.1.4).

The works should hold water on the floodplain, where it should be, reducing the risk upstream at Downton and downstream at Fordingbridge.

We will continue to apply our development control procedures (see Section 4.2) by objecting to proposed developments in the area at risk. Guidance from DoE Circular 30/92 (*Development and Flood Risk*) (see Section 4.2) and information from Section 105 floodplain maps (see Section 4.2) are also shared with the local authority. Improvements to flood warning will also be determined by a region-wide review of flood warning levels of service (see Section 3.13).

Actions	By	Cost	00	01	02	03	04
5.6 Draw up scheme proposals for flood risk areas in Salisbury and undertake public consultation on them 	Agency	tbd				●	●
5.7 Continue project to maximise the use of the floodplain downstream of Downton to give flood defence, fisheries and habitat benefits. <i>The resource is Agency staff time as part of the water level management plan initiative</i> 	Agency		●	●			

**3.5.3 Weedcutting** – Above Salisbury owners and fisheries interests carry out weedcutting. The removal of cut weed is carried out by the Agency in recognition of the partial land drainage and flood defence benefits provided by this weed cut.

The Agency undertakes weedcutting for land drainage purposes on the Avon downstream of Salisbury and this has been audited. The audit reviewed routine maintenance operations, weedcutting and annual clearance of ex-Internal Drainage Board ditches, in the light of recent conservation designations. There is growing evidence that these operations do not provide the more exacting standards required by landowners wishing to enter the Environmentally Sensitive Area scheme (see Section 4.8) on adjacent land. Also, that the operations themselves may be damaging to the in-river qualifying interests of the candidate Special Area for Conservation.

The same audit also considered the fisheries weed cut above Salisbury. Preliminary findings confirmed that the level of weed management was appropriate to sustaining viable stands of *Ranunculus* for conservation and fisheries benefit.

The final report is nearing completion. Any changes to existing cutting practices that result from the audit will be subject to external consultation including English Nature as the River Avon is a Site of Special Scientific Interest. An action plan to implement recommendations will be drawn up. This review is also required for the consenting protocol and conservation strategy (see Section 3.1.3) and forms part of the operations review required under the Habitats Regulations (see Section 3.1.1).

Weedcutting is also carried out by the Agency in order to maintain the hydraulic efficiency of flow-measuring structures. An initiative to reduce the need for disruptive weedcutting in the spring downstream of the East Mills gauging station near Fordingbridge by carrying out localised weedcutting in the autumn commenced last year. Observations of the severity of weed growth during spring 2000 will enable the Agency to review this practice.

Actions	By	Cost	00	01	02	03	04
5.8 Review weedcutting practices with interested parties following completion of the audit 	Agency EN Owners	£5k	●	●			

## 3.6 The potential impact of development on the environment

Local planning authorities and the Agency have responsibilities for minimising the impact of development on the environment. We maintain a continuous dialogue with officers of the planning authorities so that issues of common interest can be pursued and potential conflict avoided, in ways that make effective use of resources. Our work with local planning authorities is discussed in Section 4.2, *Working with local planning authorities*.

**3.6.1 Contaminated land** – A consequence of historical development is that sites become vacant when current uses end 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 water or groundwater.

We will continue to provide pollution prevention guidance on sites known to be contaminated and possibly requiring remediation and contribute to the development planning process to ensure the effective improvement of contaminated sites proposed for development through our role as a statutory consultee.

Most contaminated sites are improved during redevelopment, with the cost of the work paid for by the developer 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 may require preliminary work before developers take over.

The Environment Act 1995 contains new provisions for dealing with contaminated land which were enacted in April 2000. Local authorities are the key regulators under the Act and will carry out surveys to identify contaminated land. They will then, in collaboration with the polluters and/or landowners, ensure that works are carried out to address the identified issues.

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

At the time of publication a list of specific sites has not been compiled but some land in the area may qualify.

Ministry of Defence 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 Ministry (see Section 4.7) and local authorities to deal with any issues that may arise.

**3.6.2 Protection of groundwater** – With the importance of groundwater to the area there is a need to prevent contamination, for example from fuel spillages, and if it has occurred, to ensure that effective remediation work is undertaken. Such remediation is costly and in some cases may be impossible to achieve due to groundwater movement and the nature of the underlying aquifer.

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

We also have a requirement to monitor the quality of groundwater through a number of responsibilities. These include our general duty to monitor controlled waters and requirements under the EC Nitrates Directive (see Section 3.10.3) and the Groundwater Regulations. 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. The Agency is to begin development of a more rigorous network, based where possible

on existing supply boreholes, in line with recommendations made by the British Geological Survey in 1994.

The EC Groundwater Directive (for the protection of groundwater against pollution by certain dangerous substances) requires member states to prevent the discharge into groundwater of the most toxic substances and control other less harmful substances so that pollution does not occur. Disposal of listed substances to land, such as sheep-dip or pesticide washings on farms can only be done with an appropriate authorisation. We must enforce statutory Codes of Practice in respect of many other activities that could give rise to discharges, such as chemical stores or petrol stations, and we can serve notices to require improvements to activities or processes, or even to require that they stop altogether.

In the coming year we will be inspecting authorised disposal sites and investigating activities within the highest risk groundwater areas. In addition resources have been made available to develop a campaign to target unauthorised disposal sites.

Actions	By	Cost	00	01	02	03	04
6.1 Improve collection and reporting of groundwater quality data. <i>The timetable has yet to be determined</i> 	Agency						
6.2 Develop campaign to target unauthorised disposal sites (under the EC Groundwater Directive). <i>The cost given is the resource available to the South West Region</i> 	Agency	£10k	●	●			

### 3.7 Developing strategies for sustainable waste management

Wastes are produced as a result of industrial, commercial and domestic activities. The Agency regulates the treatment, recovery, storage, movement and disposal of controlled wastes, which includes household, commercial and industrial wastes. This currently 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. We issue waste management licences to ensure appropriate control of these activities.

We will be reviewing 16 waste management licences in the LEAP area as required by the Habitats Regulations (see Section 3.1.1).

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

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

The Government is currently working on a new statutory waste strategy for England and Wales. When complete, it will replace the current waste strategy set out in the White Paper, *Making Waste Work*, published in December 1995. In June 1999, the Government published a draft waste strategy, *A Way with Waste*, which included preliminary statistics on commercial and industrial waste arisings collated from the National Waste Production survey conducted by the Agency between October 1998 and March 1999. A full survey will be repeated every

three years although there will be reviews of European Union priority waste streams such as healthcare waste, tyres, end-of-life vehicles and oil.

The Agency will produce waste management assessments for each planning region (see Section 4.1.1) in England and Wales, which will detail information on waste arisings, projections and facilities. These are to be prepared by the end of June 2000. They will contain information from the National Waste Production Survey broken down to a county level. The South Wessex area will be involved in the interpretation of data and the provision of site-specific information.

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

Wiltshire County Council and Swindon Borough Council are currently consulting on their waste local plan. The Hampshire, Portsmouth and Southampton Minerals and Waste Local Plan has recently been published, after being adopted in December 1998.

In addition waste planning authorities need to make decisions about the type of waste management facilities required. We have released a software tool, WISARD (Waste-Integrated Systems Assessment for Recovery and Disposal), which will help inform planners and policy makers in local government, as well as the waste management industry, of the environmental burdens of the options available to them for managing waste. Economic considerations will be incorporated in later versions. We were involved in a case study with Dorset County Council to test the software in a real world situation. The study was concluded in autumn 1999 and the results will be published later in the year.

Actions	By	Cost	00	01	02	03	04
7.1 Undertake surveys of waste arisings and review priority waste streams as required; this is a cross area action. <i>This will be organised nationally and the resource requirement is as yet unknown but will be Agency staff time (the timescale has yet to be determined by central Government)</i> 	Agency			●	●	●	●
7.2 Promote the use of WISARD by waste planning authorities within the South Wessex area: this is a cross area action (25 days per year of Agency staff time will be required to complete this action) 	Agency		●	●	●	●	●

**3.7.2 Minimising and recycling waste** – Waste minimisation is the reduction of waste at source. The Government in its strategy (see Section 3.7.1) recognises that the best way to reduce the impact of waste on the environment can be simply to avoid producing it. Minimising waste realises multiple benefits to both industry and the environment. Scarce resources are conserved, the costs and impacts of waste disposal are reduced and more efficient, cleaner processes are encouraged.

The South Wessex Waste Minimisation Group was set up in December 1996 in order to develop and promote the use of best practice for the profitable and economic minimisation of all waste arising from South Wessex businesses. The group is a partnership involving some 180 local businesses as well as local authorities, Local Agenda 21 groups and Business Link (see Section 4.9). The group actively seeks new members and is open to any organisation that will gain benefit from and add value to the group. Please contact the Blandford Office for further details.

The Waste Minimisation Group is currently running a project which places students from Bournemouth University in local industry to conduct a waste minimisation or other environmental study as part of their degree course. It is hoped this will continue over the next few years, increasing the number of placements and expanding to other educational establishments.

The Waste Minimisation Group's waste exchange scheme has shown particular promise at achieving sustainable management of waste and would benefit from increased participation by businesses in the plan area. The principle of the scheme is that one person's waste can be another person's raw material which encourages environmental responsibility by enabling participants to reduce the quantities of waste disposed of. Further details are available from the internet site <http://recycle.centre.org.uk> or from the Blandford office.

The waste minimisation group plan in the future to target specific industry sectors relevant to the South Wessex area, for example precision engineering and tourism. Energy issues will also be tackled in the light of the Climate Change Levy (Energy Tax) in order that businesses address energy efficiency issues.

A 3Es (Efficiency, Economics and Emissions) campaign may be undertaken with a Warminster business during 2000 - 2001. This will involve systematically reviewing a process and identifying potential improvements and assessing their impacts upon the 3Es. Candidate businesses will be sought during 2000.

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 with local authorities to promote the concept of household waste minimisation.

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 contacts for the re-use and recovery of wastes, and waste minimisation and recycling information. Copies are available from the Agency's Blandford Office. A national recycling directory will be produced in electronic format. Area specific information will be available from this and reports will be produced for identified waste streams.

The *Producer Responsibility Obligations (Packaging Waste) Regulations 1997* are designed to implement the recovery and recycling targets in the EC Directive on Packaging and Packaging Waste. The regulations require businesses with an annual turnover of £2 million or more, and who handle 50 tonnes of packaging and packaging material, to recover and recycle a specified tonnage of packaging waste based on the amount of packaging they handle. We have been charged with implementing, monitoring and enforcing this legislation and will provide advice on the implementation of the regulations. In partnership with Business Link (see Section 4.9) we hosted a seminar, targeting over 2000 companies in the South Wessex area, to explain amendments to the regulations.

Actions	By	Cost	00	01	02	03	04
7.3 Continue to provide secretariate support to the Waste Minimisation Group 	Agency	£1.5k per year	●	●	●	●	●
7.4 Undertake 3Es campaign with a Warminster business. This action depends upon the resources being made available (25 days of Agency staff time will be required to complete this action along with the cost of a mailshot) 	Agency Local Companies		●				

### 3.8 Illegal waste disposal

Illegal tipping of waste or fly-tipping is a problem that affects the rural as well as the urban environment. It makes the environment unattractive and in some cases can cause land and water pollution and hazards to people. We are working in partnership with other organisations, such as local authorities, to try and tackle this problem (see Section 4.2) and Agency initiatives to target specific hot spots for illegal tipping will continue.

Fly-tipping of waste in isolated areas around the Salisbury area, especially on the ancient highways known as *Droves*, is becoming an increasing problem. A pilot campaign in the Salisbury area will identify the source of fly-tipped waste, target irresponsible producers and raise public awareness of the issues. The campaign will be undertaken in partnership with Salisbury District Council who commit considerable resources to keeping the *Droves* clear.

Actions	By	Cost	00	01	02	03	04
8.1 Undertake campaign in the Salisbury area to tackle fly-tipping <i>(8 days of Agency staff time will be required to complete this action along with £250 for associated literature)</i>  	Agency SDC		●				
8.2 Review success of the campaign and consider further action elsewhere in the LEAP area  	Agency	tbd	●	●			

### 3.9 Impact of sewage and sewerage on water quality

The EC Bathing Waters Directive (*concerning the quality of bathing water*) seeks to protect public health and the amenity value of popular bathing waters by reducing pollution. There are three designated bathing waters in the LEAP area: Christchurch Avon Beach, Christchurch Friars Cliff and Christchurch Highcliffe Castle.

Avon Beach and Friars Cliff complied with the mandatory bacteriological standards of the Directive in 1998 and 1999, though failed these standards in 1997. Wessex Water have installed ultra-violet disinfection at Christchurch sewage treatment works; it was commissioned in May 1998 and is now fully operational. We will continue to appraise the performance of the disinfection process. In the programme referred to as AMP3 (see Section 4.5) there is a proposal to reduce storm discharges from the Christchurch works to improve and secure compliance with the Bathing Waters Directive.

In addition to the Hampshire Avon, the Dorset Stour has an effect on the quality of waters in Christchurch Harbour. Depending on the results of investigations, disinfection using ultra-violet treatment may be required at Palmersford, Kinson and Wimborne sewage treatment works on the lower Dorset Stour. The discharge from Holdenhurst sewage treatment works will also be receiving ultra-violet treatment within the AMP3 period (see Section 4.5). The *Dorset Stour LEAP* gives further details and is available from the Blandford Office.

Salisbury sewage treatment works has had its secondary treatment capacity up-rated and will receive further modifications towards 2005 including the addition of extra storm tank capacity, under the AMP programme (see Section 4.5).

Warminster sewage treatment works was responsible for significant non-compliance with the River Quality Objective of RE2 in 1997 due to high total ammonia on the River Wylye from Warminster sewage treatment works to Henfords Marsh (see Appendix 6.6). Wessex Water has carried out improvement works and the consent to discharge is being complied with. If current performance is maintained we would expect compliance with the River Quality Objective by the end of 2001.

The EC Urban Waste Water Treatment Directive (*concerning urban waste water treatment*) specifies minimum standards for sewage treatment and collection systems (see Section 3.10.2).

The Environment Act 1995 also places a conditional duty on a sewerage undertaker to provide connection to the foul sewer for domestic users subject to a number of qualifying criteria. The Agency as an environmental regulator provides information on environmental impacts and may be requested to provide information to support applications and act as arbitrator.

There has been a requisition request made by East Dorset District Council to Wessex Water for first time sewerage to the Avon Castle conurbation situated to the north of Christchurch. Viability of this extension of sewerage infrastructure is currently being explored by Wessex Water.

We will be reviewing over 600 discharge consents in the LEAP area as required by the Habitats Regulations (see Section 3.1.1).

Actions	By	Cost	00	01	02	03	04
9.1 Monitor progress with expected AMP3 improvement schemes on designated EC bathing waters in the LEAP area 	WWSL Agency	tbd	●	●	●	●	●

### 3.10 The effect of nutrients on the catchment

Eutrophication is the process of nutrient enrichment, which in waters results in the simulation of a range of changes which may negatively affect water quality and the uses to which the water may be put. In freshwater phosphorous is generally the key nutrient limiting productivity, but for other water bodies, such as coastal waters, nitrate may be limiting.

Nutrients present in waters originate from a number of sources both point and non-point. Nutrient concentrations are also dependent on the amount of flow in the river available for dilution (see Section 3.3).

The Trophic Diatom Index has been developed to assess the eutrophic status of rivers. It can help to distinguish between the impact on eutrophication of nutrients from non-point sources and from point sources such as sewage treatment works. Our biologists undertook surveys of the upper Avon during 1998 and the upper Avon, Nadder and Wylfe during 1999. The results have been analysed and a report is being prepared.

The surveys were undertaken principally in relation to the Landcare Project (see Section 3.11.1) to assess the sources of nutrients.

Actions	By	Cost	00	01	02	03	04
10.1 Prepare report on 1998 and 1999 Trophic Diatom Index surveys ( <i>an additional 20 days of Agency staff time will also be required to complete this action</i> )  	Agency	£3k	●	●	●	●	●

**3.10.1 EC Habitats and Species Directive** – Phosphorus reduction is expected under the programme known as AMP3 (see Section 4.5) at Warminster, Pewsey and Salisbury sewage treatment works. This is to try and reduce the amount of nutrients entering the river, which may affect the natural balance of plants and animals of the River Wylfe and Avon and to meet the requirements of the EC Habitats Directive (see Section 3.1.1). Phosphorus reduction may also be required at Netheravon, Ratfyn and Amesbury sewage treatment works depending on the success of reductions at Pewsey and will be phased in during the AMP3 period (see Section 4.5).

Actions	By	Cost	00	01	02	03	04
10.2 Monitor progress with expected AMP3 improvement schemes under the EC Habitats Directive 	WWSL Agency EN	tbd	●	●	●	●	●
10.3 Monitor the effect of nutrient reduction at Pewsey sewage treatment works. <i>This forms part of the routine monitoring programme</i>  	Agency		●	●	●	●	●

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

The Avon downstream of Salisbury sewage treatment works, *the qualifying discharge*, has been designated a Sensitive Area (Eutrophic) under the Directive following demonstration of eutrophic conditions by the Agency. This means that nutrient reduction will be required; we expect phosphate reduction at Salisbury under the programme known as AMP3 (see Section 4.5). This also applies to Ringwood sewage treatment works, however reduction will be deferred until the effect of reductions at Salisbury has been 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 population equivalents.

Information will be reviewed in 2001 to assess whether the River Wylfe, downstream of Warminster, will be put forward for designation as a Sensitive Area (Eutrophic). The performance of Salisbury sewage treatment works with the operation of the nutrient reduction plant over the next four years will also be monitored.

Christchurch Harbour was also proposed as a candidate Sensitive Area (Eutrophic) under the EC Urban Waste Water Treatment Directive but insufficient criteria were met for it to go forward for designation. We continue to gather information to support a more robust case for designation at the next review in 2001.

Actions	By	Cost	00	01	02	03	04
10.4 Monitor progress with expected AMP3 improvement schemes under the EC Urban Waste Water Treatment Directive 	WWSL Agency	tbd	●	●	●	●	●
10.5 Monitor the effect of nutrient reduction at Salisbury sewage treatment works. <i>This forms part of the routine monitoring programme</i>  	Agency		●	●	●	●	●
10.6 Continue monitoring downstream of Warminster sewage treatment works in support of the Sensitive Area (Eutrophic) designation. <i>This forms part of the routine monitoring programme</i>  	Agency		●	█			
10.7 Continue monitoring Christchurch Harbour in support of the Sensitive Area (Eutrophic) designation. <i>This forms part of the routine monitoring programme</i>  	Agency		●	█			

**3.10.3 EC Nitrates Directive** – A major source of nitrate pollution can be from agricultural activity and the EC Nitrates Directive (*concerning the protection of waters against pollution caused by nitrates from agricultural sources*) requires member states to identify ground or surface waters that are or could be affected in this way. If waters are clearly demonstrated to be affected, and agriculture is making a significant contribution, the land draining to these polluted waters must be designated a Nitrate Vulnerable Zone (NVZ).

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

Regular reviews must be carried out of existing NVZs and to identify potential new areas. The next review for groundwater sources will begin within the next 12 months. Currently there are no NVZs in the plan area.

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

Actions	By	Cost	00	01	02	03	04
10.8 Contribute to the four-yearly review process of groundwater NVZs. <i>The resource requirement is as yet unknown but will be Agency staff time</i> 	Agency Others	tbd	●	●			
10.9 Continue monitoring Christchurch Harbour in support of the candidate Polluted Waters (Eutrophic) designation. <i>This forms part of the routine monitoring programme</i> 	Agency		●				

### 3.11 Impact of land use on water quality

The agricultural community has responded well to our campaigns to reduce acute pollution incidents by improvements to the storage facilities provided for material such as silage and slurry. However changing agricultural land use and increases in the disposal of waste to land have led to other problems including the increased risk of soil erosion and surface runoff from land contaminated by pesticide residues and fertilisers.

The spreading of waste to land has caused localised problems usually of an environmental health matter. Smell nuisance, spreading too close to properties, and tanker hard standings are the main issues not river pollution.

Although sediments occur naturally in rivers and form part of the natural cycle of erosion, elevated quantities can cause serious damage to the flora and fauna of rivers. In particular they may encourage the growth of less desirable plants in the river channel and reduce the recruitment of salmonids and other fish species both by rendering the river bed less desirable to the adults and by smothering the eggs (see Section 3.4). In addition the erosion of soil from agricultural land can be a route for the entry of nutrients and pesticides into the watercourse (see Section 3.10).

The condition *Chalk Stream Malaise*, the deterioration of chalk streams, identified by anglers is characterised by a number of symptoms as detailed in Section 3.1.5. Anecdotal evidence suggests that agricultural and urban non-point source pollution are contributory factors to the deterioration in river habitat.

Historically pollution control has had a strong emphasis toward point source control from specific discharges but we are now adopting a more holistic approach. Integrated strategies are being developed to deal with point source and non-point source pollution. We are also working closely with the Ministry of Defence and their consultants to minimise the impact of their activities on Salisbury Plain (see Section 4.7).

**3.11.1 Landcare project** – 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 the issue with 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 non-point source pollution; these techniques help keep potential pollutants such as soil, pesticides and fertilisers on the fields, where they are of benefit, and out of watercourses.

An integral part of the project is to demonstrate to farmers these improved land management practices and a substantial part of the *Landcare* budget and project officer effort will be directed at developing demonstration sites, and holding farmer discussion groups to debate improved practice to control non-point source pollution. North Hill Farms Ltd have already developed a reduced tillage demonstration site on the Wilton Estate at Groverly Lane, Barford St Martin.

We will also be working with a number of organisations including the Ministry of Agriculture, Fisheries and Food (MAFF) as we are keen to complement the objectives of appropriate agri-environment schemes (see Section 4.8). However, many of these schemes focus on land adjacent to watercourses. There is increasing evidence that a

substantial proportion of non-point source pollution entering the river comes from downland some distance away from rivers, being carried to them via the road, track and ditch drainage network.

A consortium of farming, government, council, conservation, water company and fishery groups has also been set up. This consortium, the *Landcare Partnership*, will be developed to help support farmers put in place improved land management practices.

Another key aspect of the project is the monitoring of land-use practices and farmer attitudes as well as the environment. We are developing new river monitoring techniques to better understand non-point source pollution problems and are co-funding a Ph.D student at Exeter University to investigate the sources, behaviour and impact of fine sediment within the Avon. We will continue to collaborate with others and support research and investigation work in this area.

Focus groups consisting of people who live and work by the river have been set up and the information they have provided on pollution problems has been extremely useful. We would be grateful if these groups, river keepers and the public could continue to provide this information.

Actions	By	Cost	00	01	02	03	04
11.1 Clarify the impact of non-point source agricultural pollution on river water and gravel quality through specialist monitoring work. <i>This may be funded by external partners</i> 	Agency Exeter University	£2.5k	●				
11.2 Identify problem areas for non-point source farm pollution through incident reports from the public and <i>Landcare</i> focus group members 	Public Partners	tbd	●				
11.3 Investigate the contribution of nutrients from agriculture in partnership with ADAS (part funded by MAFF) 	Agency ADAS MAFF	tbd	●				
11.4 Develop <i>Landcare</i> consortium into an effective partnership to support farmers with tackling the non-point source agricultural pollution problem ( <i>25 days of Agency staff time will also be required to complete this action</i> ) 	Agency Partners	£1k	●				
11.5 Demonstrate the effectiveness of best management practices and the <i>Landcare</i> strategy ( <i>Agency staff time will also be required</i> ) 	Agency Partners	£13k	●				
11.6 Co-ordinate farmer discussion groups, especially with regard to nutrients, maize and potatoes and provide advice on best practice ( <i>Agency staff time will also be required</i> ) 	Agency Partners	£13k	●				

**3.11.2 Farm campaigns** – The River Nadder from Ludwell to the confluence with the Sem and from the confluence with the Novant Brook to the confluence with the Avon significantly failed to comply with the River Quality Objectives of RE2 and RE1 respectively in 1997 due to high biochemical oxygen demand (see Appendix

6.6). Run-off from rural land is believed to have been a contributory factor.

In the 1998 water quality assessment the significant failures remain, with the addition of a marginal failure to comply with a River Quality Objective of RE2 in the stretch from the confluence with the Sem to the confluence with the Fonthill Stream. This was due to high biochemical oxygen demand.

A farm campaign in the Nadder catchment to make farmers more aware of non-point source pollution issues was carried out in 1997 and 1998. The concerted farm campaign remedied a large number of run-off problems but the catchment is susceptible to prolonged and intensive rainfall causing severe run-off and flooding of agricultural land. It is during these periods that river water quality is adversely affected.

Another farm campaign targeted the farms in the river Sem catchment, a tributary of the river Nadder, during 1999. Here there are significantly higher numbers of cattle and farmers have had to carry out improvements to their farm waste collection systems to comply with the MAFF Code of Good Agricultural Practice. Run-off problems are very similar to those in the Nadder catchment.

Although the rivers Nadder and Sem should show improvements in water quality following the farm campaign, the soil, geology and predominant land use (dairy farming) will continue to cause low level non-point source pollution. The Agency's *Landcare Project* (see Section 3.11.1) is attempting to educate and encourage farmers in the benefits of good practice in relation to land use and run-off issues.

A major source of nitrate pollution can be from agricultural activity and the EC Nitrates Directive (*concerning the protection of waters against pollution caused by nitrates from agricultural sources*) requires member states to identify waters that are or could be affected in this way (see Section 3.10.3).

Actions	By	Cost	00	01	02	03	04
11.7 Investigate significant River Quality Objective non-compliance on the Nadder from Ludwell to the confluence with the Sem. <i>For actions 11.7, 11.8 and 11.9 50 days of Agency staff time will be required in the first year and 35 days in the second year</i>	Agency		●	●			
							
11.8 Investigate significant River Quality Objective non-compliance on the Nadder from the confluence with the Fovant Brook to the confluence with the Hampshire Avon. <i>For actions 11.7, 11.8 and 11.9 50 days of Agency staff time will be required in the first year and 35 days in the second year</i>	Agency		●	●			
							
11.9 Investigate marginal River Quality Objective non-compliance on the Nadder from the confluence with the Sem to the confluence with the Fonthill Stream. <i>For actions 11.7, 11.8 and 11.9 50 days of Agency staff time will be required in the first year and 35 days in the second year</i>	Agency		●	●			
							
11.10 Revisit and monitor management of farm waste systems in the Nadder catchment. <i>Visits will be made as resources allow (15 days per year of Agency staff time will be required to complete this action)</i>	Agency		●	●	●		
							

### 3.12 Impact of unknown causes on water quality

The following river stretches all failed to comply with their river quality objectives in 1997 (see Appendix 6.6) and were reported in the LEAP Consultation Draft:

- Avon from Downton to Downton sewage treatment works, marginally failed to comply with its River Quality Objective of RE2 due to high biochemical oxygen demand. Investigations during summer 1998 showed there was sufficient dilution for fish farm operation and river quality objectives to be met within this short stretch. The sampling point was also identified as unrepresentative in relation to the centre of the main channel. Representative sampling is now in place and the stretch has been compliant for the last two years.
- Fonthill Stream from upstream of Fonthill Lake to the confluence with the Nadder, marginally failed to comply with its River Quality Objective of RE1 due to high biochemical oxygen demand. This stretch significantly failed to comply with its RQO of RE1 due to high biochemical oxygen demand in 1998. An investigation is planned for 2000.
- Wylde from Kingston Deverill to the confluence with the Shearwater watercourse, marginally failed to comply with its River Quality Objective of RE1 due to low dissolved oxygen. Continuous monitoring was undertaken for two months during summer 1998 and crosschecked with spot samples and found to be in agreement. Previous non-compliance was down to two poor consecutive samples taken in August and September 1995. Dissolved oxygen spot samples taken since 1996 have been compliant.

Actions	By	Cost	00	01	02	03	04
12.1 Investigate significant River Quality Objective non-compliance on the Fonthill Stream from upstream of Fonthill Lake to the confluence with the Nadder. <i>This forms part of the routine monitoring programme and the data will be reviewed at the end of 2000 (5 days of Agency staff time will be required)</i> 	Agency			●			

### 3.13 Emergency response to fluvial and tidal flooding

We can build new defences if flooding is a serious problem in a particular area, but nowadays we usually only build new defences to protect built-up areas. All schemes must be proven to be technically, economically and environmentally sound. We also carry out maintenance work on existing schemes (see Section 3.5.2).

Absolute flood protection is not possible; because of this we need to warn people when there is a risk of flooding. We have the lead role in passing flood warnings to people who are at risk, so that they can take action to protect themselves and their properties. Where there is a risk that flooding could occur, flood warnings are issued for the area affected. These warnings are issued to the police, local authorities, media and those in high-risk properties. Detailed arrangements are documented in the *Dorset, Hampshire and Wiltshire Flood Warning Dissemination plans*, which can be viewed at our offices.

The Agency operates a telephone information service called FLOODLINE which provides up-to-date information on warnings in force and general advice on how to prepare and deal with floods.

Where possible we aim to issue a warning at least two hours in advance of flooding. A study into the level of service of flood warning is currently being carried out in the South West. The 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. A summary of the findings will be produced by September 2001.

Actions	By	Cost	00 01 02 03 04
13.1 Complete survey into the level of flood warning in the South West. <i>This action applies to the entire region</i> 	Agency		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Following the severe floods, in East Anglia and the Midlands, of Easter 1998 the Government commissioned an independent review of events, the Bye Report. In a subsequent Parliamentary Statement the Agency was given targets to achieve a seamless and integrated service of flood forecasting, warning and response by April 2000. Having considered the Bye Report and the findings of the Agriculture Select Committee on Flood Defence and Coastal Defence the Agency has drawn up an action plan which will be implemented nationally and includes the following actions:

- Introduce improvements to the network of telemetered river-flow monitoring
- revise the Agency's National Flood Warning Strategy and establish a national flood warning centre
- Improve links with the Meteorological Office
- carry out a visual survey of all flood defences
- review and publish consistent flood risk maps for use in regulating development

In general, the South West region is well advanced in dealing with the issues raised. In addition, a National Flood Awareness campaign was launched in 1999, and the flood warning colour code system will be replaced in September 2000.

### 3.14 Need to protect features of archaeological interest

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

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 and 1998 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 lower Avon. Hampshire County Council have carried out a review of all water meadows in the Avon Valley within the county, and we await their report.

The Inland Waterways Association holds information on the remains of the former *Avon Navigation*, and are currently compiling a report giving further details. This information will be used to help protect important remains.

The conservation of water meadows is one objective of the Environmentally Sensitive Area scheme (see Section 4.8), but full restoration is unlikely to bring significant ecological benefits. Partial restoration, aiming to raise water levels in grassland communities and reinstating ditches and drains, can have biodiversity benefits in recreating wetland communities that are in decline (see Section 3.1.4 and 3.5.1).

Subject to the availability of water resources and consideration of fish migration issues and in the absence of

adverse environmental impact, we will support water meadow restoration projects where possible. We would wish to be consulted at the early stages of any proposed restoration scheme (see Section 3.5.1).

It is important to note that the operation of water meadows creates a large seasonal demand for water and depending on the individual circumstances, the water provided for water meadows may need an abstraction licence (see Sections 3.2.2 and 3.5.1).

Actions	By	Cost	00	01	02	03	04
14.1 Initiate extensive study on the Avon to identify the extent, survival and historic importance of water meadows. <i>This action is currently unresourced but we will look for partnerships to undertake this work</i> 	Agency	£12k	●	●	●		

### 3.15 Lack of recreational opportunity within the area

An initial study into the Agency's role for recreation in the Avon Valley looked at the opportunities for extending recreational access. It concluded that there was some general support for exploring further opportunities, particularly from local authorities, but no resources were made available. The international conservation status of the area is widely recognised and increased access needs to be very carefully balanced alongside this. However, the LEAP consultation did reveal a demand for more access to the valley.

In reality there are considerable constraints cited from both landowners and conservationists against significant additions to the access network. We believe that there is some, albeit limited, scope for improving and promoting existing access to the valley. To this end, we are exploring options in the Salisbury area, with the *Salisbury Wildlife Project* and hopefully in partnership with the Countryside Agency. Opportunities may exist through the South East Dorset Countryside Recreation Strategy *Greenlink Project* and we hope to explore these. The Mude Valley (Christchurch - New Forest) is a pilot area.

In the meantime, opportunities should be taken for increasing general public awareness through promotion of the landscape, nature conservation and historic interest of the area 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. There is also an extensive public footpath network over much of the area and the Avon Valley Way runs from Salisbury Cathedral to Christchurch, although much of the route lies outside the floodplain.

Several canoe clubs operate in the area and public rights of navigation exist in the tidal stretches of the river at Christchurch. We have contacted local canoe clubs in an effort to be more aware of their needs and negotiated access for the Ringwood canoe club to a structure that we own at Fordingbridge.

There are opportunities for water-based recreation at Blashford Lakes (sailing, angling, waterskiing and surf-boarding). Again, uses have to be carefully managed to balance with the international status of the lakes for wildlife.

Throughout the LEAP area there are also many opportunities for angling, both river and stillwater, through owners, clubs and associations.

Christchurch Harbour is a fine natural harbour with multiple leisure uses associated with it and most forms of water-based recreation take place within it, 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 ecological resource and a number of important habitats and species occur within and around it. The Agency also has responsibility for some aspects of the fishery management in the harbour, and

we are consulted on many proposals within the area, for example improving canoe access and dredging.

At present, we feel there is insufficient knowledge available to enable sound, sustainable solutions to be found to the issues raised by the use of the harbour. We feel there is a need to prepare a strategy, in partnership with others, to make the most effective use of these waters. This complements the Dorset Coast Strategy (see Section 4.3) which highlights the need to strengthen management arrangements for the Dorset Coast and there appears to be considerable support for this initiative.

Actions	By	Cost	00	01	02	03	04
15.1 Contribute to collaborative urban fringe projects (Mude Valley). <i>This action is currently unresourced</i> 	Greenlink Agency	£1k per year	●	●			
15.2 Investigate scope for improving access in the Salisbury area. <i>This action is currently unresourced</i> 	WTs CA Agency Sport England	£2k per year	●	●			
15.3 Promote the development of a strategy for Christchurch Harbour. <i>This action is currently unresourced</i> 	LAs Agency EN RSPB Users Sport England	£1k per year	●	●			
15.4 Prepare sampling and survey strategy for the Harbour to meet needs identified in action above. <i>This action depends on the outcome of action 15.3</i> 	LAs Agency EN RSPB Users Sport England	tbd		●	●		

### 3.16 Dealing with the potential effects of climate change on the environment

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 the use of 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 industries known as Part A processes under the system of Integrated Pollution Control. We will also try to 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, based on our own environmental policy initiatives.

There is also some concern that if winters become wetter and stormier this will lead to short intense rainfall periods which could increase the risk of soil erosion and non-point source pollution. Part of the Agency's Landcare

Project is designed to reduce the risk of soil erosion and land runoff (see Section 3.11.1).

Allowances are already made in the design of sea defences to accommodate the estimated rise in sea levels over the design life of the defence. Predicted changes in rainfall patterns and increased storminess are likely to increase the frequency of riverine flooding and subsequent inundation of floodplains. 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 which are produced in partnership with other organisations (see Section 4.4). There is one plan in preparation for the coastal zone in this area.

The Christchurch and Poole Bay Shoreline Management Plan (Durlston Head eastwards to Hurst Spit) is being managed by Bournemouth Borough Council. The final report has now been adopted.

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 believed to be having major effects on the survival at sea of Atlantic salmon and we are having to take actions to reduce mortality in-river partly because of this (see Section 3.4.2).

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

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

Somerley landfill site is almost filled to capacity, and will be completed within the next few months by which time the new Chatsworth/Blue Haze site situated adjacent to Somerley, will be open to receive waste. Somerley has an active gas extraction system, with landfill gas being flared off. The operators, Oynx, are currently in the process of applying to the Government for a Non-Fossil Fuel Obligation grant. They hope to install a generator to convert landfill gas to electricity, which subsequently could be sold to the National Grid.

Consideration is given to flaring at an appropriate time during a site's life, the decision whether or not to generate electricity is a commercial consideration. We will encourage flaring of landfill gas at the new Chatsworth/Blue Haze site when appropriate.

Actions	By	Cost	00 01 02 03 04
16.1 Encourage the active abstraction of landfill gas where possible, including at the new Chatsworth/Blue Haze landfill site. <i>The resource required will be Agency staff time</i> 	Agency Operators LAs		● ● ● ● ●

## 4. A better environment through partnership

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

### 4.1 Working with regional government

**4.1.1 Government Offices** – The Government Office for the South West (GOSW) and the Government Office for the South East (GOSE) are responsible for delivering various government department activities in the regions. The Agency aims to work closely with the regional government offices wherever possible, and has already been involved in a variety of collaborative regional projects, including the establishment of regional round tables on sustainable development.

**4.1.2 Regional Development Agencies** – In April 1999, the Government established statutory, regional economic development agencies for the English regions. These include the South West of England Regional Development Agency (SW RDA) and the South East of England Development Agency (SEEDA). These bodies have taken on many of the programmes of English Partnerships, the Rural Development Commission and the Government Office's Single Regeneration Budget with the aim of furthering the economic and social performance of regions.

SW RDA launched a strategy for the South West in October 1999 which identifies the environment of the South West as a key driver for the region's economy and quality of life. Linkages were highlighted by the Agency and other regional organisations in a recent publication entitled *An Environmental Prospectus for South West England*. The SEEDA Regional Economic Strategy was also published in October 1999 and sets out programmes and draft action plans for seven themes including *World Class Environment* and *World Class Rural Economy*. SEEDA have also signalled their interest in contributing to environmental enhancement projects which involve local communities. Funding may also be available from the New Opportunities Fund.

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

### 4.2 Working with local planning authorities

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

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

We are a statutory consultee in the land use planning system, and advise planning authorities on the impact of proposed developments together with our requirements for environmental protection. In this respect we aim to provide consistent and effective responses to planning applications. We also work with county, unitary and local

planning authorities to ensure that suitable policies to protect and enhance the environment are incorporated into development plans.

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

- new developments may be at risk from flooding or may aggravate flood risks elsewhere by obstructing floodplain flows or increasing surface water runoff. We routinely give advice on flood alleviation matters for planning applications and other enquiries, and through local plan consultation.
- where a site forms part of the floodplain, 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. 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.

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

It is important that before development is considered the capacity of a sewage treatment works to deal with the additional loading is evaluated. The quality of the receiving watercourse must also be protected.

When consulted on surface water drainage arrangements we will promote the use of *sustainable drainage* techniques. This approach can help minimise the effects of development on the environment, for example to help reduce the risk of pollution and also flooding by preventing rapid surface water runoff or maintaining flood storage capacity. 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. 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 to identify the risks and to advise planners. The following areas were highlighted:

- existing town culverts have no spare capacity
- further development upstream of these culverts may exacerbate the flood risk
- the risk of culvert blockage is ever present irrespective of further development

We will continue to encourage a strategic approach to forward planning for development in and around Warminster. This should include the consideration of sustainable drainage techniques.

We are also involved with Hampshire County Council's *Water In Hampshire* project which aims to provide the county with a comprehensive understanding of how the water industry operates in Hampshire.

**4.2.2 Minerals and waste plans** – We are also consulted on the Minerals and Waste Plans and on applications relating to specific sites. Commenting on waste plans allows the Agency an opportunity to influence the location of new waste sites, as well as policies relating to the operation and aftercare of the sites. The Agency will seek policies, among others, to ensure leachate and drainage is controlled and monitored and that adequate provision is made for the containment and collection of landfill gas where necessary. Such a policy will be compatible with waste management licensing requirements. We also have a duty to comment on proposed developments within 250 m of a landfill site.

In relation to mineral workings the Agency will seek policies, among others, to resist proposals for new mineral extraction where there is likely to be an adverse effect on groundwaters, surface waters and other water bodies and associated habitats, and to encourage restoration works that result in environmental enhancement. We would also provide advice as to whether a waste management licence or exemption would be required. At this stage we may also comment on issues relating to the protection of the environment, harm to human health and serious detriment to amenities.

We also share responsibility for dealing with fly-tipping with local authorities. A protocol on fly-tipping was agreed between the Local Government Association and the Agency last year which set out actions to be taken by each party. We intend to carry out proactive measures, where resources are available, to target locations that are being used for large-scale tipping activities (see Section 3.8).

**4.2.3 Transport** – The County Councils and Unitary authorities, as the Highways Authority, set out proposals for the strategic road network in the Structure Plan and their Transport Policies and Programme submission.

Although road transport is not our responsibility, it does affect the environment and cuts across many of our nine environmental themes (see Section 3). Through our National Centre for Risk Analysis and Options Appraisal we influenced the Government review of trunk road schemes to highlight the potential impact they may have on the environment and to ensure that future plans take into account environmental impact.

Where appropriate and required we will comment on road proposals to ensure protection of the environment, this includes the A303(T). We are currently providing comments to the local planning authority regarding the proposed tunnelling of the A303(T) at Stonehenge and the proposed Stonehenge visitor centre. The design and construction of both the road scheme and the visitor centre will need to address pollution prevention issues.

**4.2.4 Communication of policy guidance** – We have produced several documents that set out our policy guidance in a number of areas:

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

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.

## 4.3 Coastal zone management plans

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

Dorset County Council has taken the lead role in setting up a Coast Forum for Dorset, with representatives from local authorities, environmental agencies, central government departments, businesses and other interest groups.

Their aim is to promote a sustainable approach to the management of the coastal zone and to develop an integrated coastal zone management policy. We are a member of this Forum and support its aims.

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

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

The strategy was amended to take account of the responses received, and launched during May 1999. Further details on the Dorset Coast Forum can be found on their internet site at <http://www.dorset-cc.gov.uk/dcf> (see Section 3.15).

#### 4.4 Shoreline Management Plans

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

The objectives of these plans are to improve the understanding of coastal processes, develop sustainable coastal defence policies, and to set out arrangements for continued consultation with interested parties. Shoreline Management Plans inform Coastal Zone Management plans that cover a much wider set of coastal issues including the interests of fishing and tourism. Although these plans are voluntary it is intended by the Ministry of Agriculture Fisheries and Food that they will be referred to when developing and revising county structure and local plans. There is one plan in preparation for the coastal zone in this area (see Section 3.16).

#### 4.5 Working with the water industry

A number of Wessex Water sewage discharges are known to cause or contribute to the exceedence of water quality targets. These discharges will be improved through the Water Company's investment programme. Investigations and investment required to protect rivers and wetlands from the effects of abstraction have also been considered.

The Water Company's investment programmes are also known as Asset Management Plans (AMP), and the third of these, AMP3, will cover the period 2000 - 2005. The plans have been developed along guidelines agreed between the Agency, the Department of the Environment, Transport and the Regions, the water services companies and the Office of Water Services (OFWAT). OFWAT has now completed the review of water prices which allows for this programme of environmental investment and enables the companies to make the improvements by 2005. Many of the schemes will be delivered before 2005.

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

Discharge	Receiving water	Improvements expected
Amesbury STW <sup>1</sup>	Avon	Reduction of effluent phosphate concentrations to meet requirements of the EC Habitats Directive (see Section 3.10.1)
Christchurch STW	Christchurch Harbour	Increase in storm storage to ensure compliance with the EC Bathing Waters Directive (see Section 3.9)
Netheravon STW <sup>1</sup>	Avon	Reduction of effluent phosphate concentrations to meet requirements of the EC Habitats Directive (see Section 3.10.1)
Pewsey STW	Avon	Reduction of effluent phosphate concentrations to meet requirements of the EC Habitats Directive (see Section 3.10.1)
Ratfyn STW <sup>1</sup>	Avon	Reduction of effluent phosphate concentrations to meet requirements of the EC Habitats Directive (see Section 3.10.1)
Ringwood STW <sup>2</sup>	Avon	Reduction of effluent phosphate concentrations to meet requirements of the EC Urban Waste Water Treatment Directive (see Section 3.10.2)
Salisbury STW	Avon	Reduction of effluent phosphate concentrations to meet requirements of the EC Habitats Directive and the EC Urban Waste water Treatment Directive (see Sections 3.10.1 and 3.10.2)
Warminster STW	Wylde	Reduction of effluent phosphate concentrations to meet requirements of the EC Habitats Directive (see Section 3.10.1)

1 - phosphorus reduction will be required depending on the success of reductions at Pewsey

2 - phosphorus reduction will be required depending on the success of reductions at Salisbury

The Agency is committed to monitoring the progress of all identified AMP schemes due for completion before the end of 2005. Monitoring schemes will be in place to assess the environmental benefits cited for the larger improvement schemes covering nutrient reduction and/or protection of bathing water quality (see Sections 3.9 and 3.10).

We also expect AMP3 to deliver improvements to the sewerage infrastructure (see Section 3.9).

We expect the following improvements to protect rivers and wetlands from the effects of abstraction to be completed in AMP3.

Site name	Source of problem	Driver	Improvements expected
River Avon	Groundwater abstraction	EC Habitats Directive	Prepare to reduce abstraction at Chitterne by 20 Ml/d by 2005 (see Section 3.3.1)
River Avon	Surface water abstraction	EC Habitats Directive	Investigation into possible optimisation of abstraction patterns to facilitate the migration of salmon (see Section 3.4.2). Action by 2005
River Bourne	Groundwater abstraction	Non SSSI	Assess the environmental impacts of abstractions from the Bourne and Nine Mile River catchments, formulate any necessary practical mitigation measures and implement by 2004 (see Section 3.3.2)
Fonthill Stream	Groundwater abstraction	Non SSSI	Currently reviewing options for further investigation (see Section 3.3.3). Investigate by March 2005

Significantly, the River Wylde scheme is expected to be completed by 2005 however financial provisions have not been allowed for within the OFWAT determination (see Sections 3.2.1 and 3.3.1).

## 4.6 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 (see Section 4.1.1) also ensure involvement in Local Agenda 21 at a regional level. Expert advice is available following the establishment of individual staff contacts for each local authority via our Local Agenda 21 seminar held in Shaftesbury in October 1997.

The Agency has close links to the Wiltshire Local Agenda 21 group and is involved with the project of enhancing the riverine habitat in the centre of Salisbury in collaboration with the Agency's Heritage Lottery Fund Millennium Festival initiative (see Section 3.4.1).

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

## 4.7 Working with the Ministry of Defence

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

We regularly meet with the Ministry and their environmental consultants on many issues. All areas of the Salisbury Plain training area are covered from Warminster in the west to Tidworth in the east. A national list of contacts is also being compiled to ensure that issues in different parts of the country are dealt with on a consistent basis.

The improvements to the Tidworth Camp sewage treatment works, required to meet the discharge conditions to protect the River Bourne, have now been completed. The contract undertaken by Thames Water has taken two years to carry out and has included the complete refurbishment of the treatment plant and re-engineering of the soakaway lagoons. We were closely involved with the successful design, planning and implementation of the improvement works with the Ministry of Defence (MoD) and Thames Water. We have also been closely involved with the improvements to the Warminster Garrison and Harman Lines sewage treatment works.

Consultation has been undertaken with MoD contractors and consultants to ensure that the construction of the Southern Range Road does not cause any adverse effects to the water environment. We were also involved with the clean up of the test ranges for chemical weapons at Winterborne Gunner.

We have also been working closely with Thames Water and the Ministry of Defence regarding the water resource investigations currently being undertaken on the River Bourne and Nine Mile River (see Section 3.3.2). We will seek to continue this approach in the future at sites throughout the LEAP area.

## 4.8 Working with farmers and landowners

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

The scheme is of great importance in the Avon valley in terms of encouraging landowners to protect and enhance wildlife habitats and landscapes. In particular it is essential as a contribution to the implementation of water level management plans and floodplain restoration (see Section 3.5.1), and biodiversity targets (see Section 3.1.4).

For land outside Environmentally Sensitive Areas, the Ministry of Agriculture Fisheries and Food main agri-environment scheme is the Countryside Stewardship scheme. Voluntary ten-year agreements are available to farmers and landowners covering a wide range of measures, each of which has a standard payment, and which are targeted at certain English landscapes. The scheme aims to enhance the landscape, wildlife and historic features of the target landscape, including watersides and wetlands; it also provides payments for allowing permissive access where this is appropriate. The scheme is available throughout the area with the New Forest Heritage Area and the Wiltshire Downs being particular targets. The scheme is, however, discretionary with a limited budget and individual applications compete for the funding available.

The Habitat Scheme (Water Fringe Option) was available on the Wylde, Nadder and upper Avon and has now been incorporated into the Countryside Stewardship scheme.

We carry out regular farm inspections and advise on pollution prevention, waste disposal, farm management plans and pesticide use (see Section 3.11.2). 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 3.11.1).

We also provide advice and assistance to fishery interests throughout the LEAP area, particularly in the area of habitat protection and restoration (see Section 3.4.1).

#### 4.9 Working with business

We are working with local businesses and their representatives to promote pollution prevention and waste minimisation. Recent waste minimisation initiatives, our oil care campaign and our training video for construction workers are practical examples of how we intend to combine education and communication to prevent pollution. We are also prepared to provide an induction on pollution control measures to workers at demolition and construction sites. We have also met with waste sector groups to discuss issues of mutual interest, including advice on regulations that the Agency has to implement.

Business Link is an organisation, primarily in Dorset, that provides information on environmental legislation to small and medium size businesses. We contribute funding and provide specialist advice as and when required.

We have worked closely with the British Waterways Board in connection with the draining and relining repairs to the Kennet and Avon canal in the north of the LEAP area. The scheme involved major engineering works and extensive consultation between the Board, their consultants and the Agency. The main concerns were to ensure that the disposal of silt complied with current legislation and to prevent pollution to the numerous tributaries of the Hampshire Avon.

#### 4.10 Conservation

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

There is also a close partnership of environmental organisations spanning the three counties, the *Avon Valley*

*Liaison Group*, which reviews schemes and initiatives for the area and encourages co-ordinated advice and action within the valley.

#### 4.11 Development of recreation

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

Sustainability is an underlying theme to all our activities and the promotion of recreation and management needs to be balanced with other interests. There are a number of organisations with an interest in countryside and water recreation and we will work in partnership, where appropriate, to promote and develop the recreational use of the area where this can contribute to a balance of uses (see Section 3.15).

#### 4.12 Education

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

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

- educate young people to help them to make informed judgements about future environmental decisions. Initiatives being developed include: teacher training, advising and assessing Eco-Schools, providing environmental data to schools and producing case study materials suitable for secondary schools, and in further and higher education
- educate industry through consultation, collaborative activities and targeted campaigns to promote a culture of prevention rather than cure
- raise public awareness of environmental issues to engender in society a common ownership of the environment and its challenges

Currently, Agency Regional Education co-ordinators are developing links with all local education authorities with a view to working with them. We are also investigating whether we can make use of the cross curricula study pack *Discovering Rivers and Streams* produced by Hampshire County Council in partnership with the Thames Region of the Agency.

Further information can be obtained from the Customer Services Centre at our Blandford office or from the Regional Education Co-ordinator at our Exeter office.

#### 4.13 *Make a Difference* environmental improvement projects

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

- **Wiltshire Vole Survey** - continuation of data collection to complete the survey for the upper Avon, Ebble and River Nadder catchments (see Section 3.1.4)
- **Water Vole initiative** - collaborative production of a questionnaire targeting landowners on the Avon to

provide information on their distribution and habitat management (see Section 3.1.4)

- **River Avon Hale Project** - improvement of main river and water meadow channel habitat downstream of Charford Weir by installation of an extensive riffle (see Section 3.4.1)
- **Home Composting Initiative** - joint project with Kennet District Council to promote home recycling and composting initiatives
- **Dorset Scrapstore Project** - collaborative project to promote the principle of sustainability by providing a repository for clean waste materials from industry

#### 4.14 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. Summary of public consultation

Approximately 600 Hampshire Avon LEAP Consultation Drafts were circulated, and responses received included those from:

### National Organisations

British Canoe Union  
 British Geological Society  
 Council for the Protection of Rural England  
 English Nature  
 FDF Savills  
 Forestry Commission  
 Ministry of Agriculture, Fisheries and Food  
 Office of Water Services  
 Ramblers' Association  
 The Countryside Agency  
 The Inland Waterways Association

### Local Organisations

Avon Valley Nature Conservation Liaison Group  
 Dorset Wildlife Trust  
 Hampshire & Isle of Wight Liberal Democrats  
 Hampshire Ornithological Society  
 Hampshire Wildlife Trust  
 PSICES Conservation Ltd  
 South Wiltshire Local Agenda 21 Group  
 The Inland Waterways Association, Solent and Arun Branch  
 The Piscatorial Society  
 Wessexplore  
 Wiltshire Fishery Association  
 Wiltshire Wildlife Trust

### Councils

Dorset County Council  
 Hampshire County Council  
 Wiltshire County Council  
 New Forest District Council  
 West Wiltshire District Council  
 Christchurch Borough Council  
 Warminster Town Council  
 Ellingham, Harbridge & Ibsley Parish Council  
 Downton Parish Council  
 Pewsey Parish Council  
 Fittleton Parish Council

Some of the comments and concerns are summarised below. The comments are based on the sections in the Hampshire Avon LEAP Consultation Draft; the table in Appendix 6.2 shows the relationship between the issues in the Consultation Draft and this LEAP Plan.

### 5.1 General comments

A number of comments were made on the format of the Consultation Draft along with numerous editorial points.

*Our comment: where appropriate editorial points have been corrected and a number of changes have been made to the format of the LEAP Plan in response to the consultation. The comments made on the format of LEAPs have also been passed to a national group who are currently considering the future role of LEAPs.*

## 5.2 Managing our water resources

Several consultees expressed the view that legislation is required to limit the demand for water and that a general action on demand management be incorporated.

*Our comment: we have a role in balancing the needs of the abstractor with those of the environment and recognise the importance of limiting the demand for water as a contribution to maintaining this balance. As part of a long-term planning process the water companies have been asked to produce Water Resources Plans indicating how they intend to balance the supply and demand for water. Whilst these include resource development options we have emphasised to the water companies the need to consider options to manage the demand for water as a means of balancing supply and demand (see Section 3.2.1).*

*New Water Regulations came into force on 1 July 1999 including a reduction of the maximum flush volume to 6 litres from January 2000. We have established a national research and information centre for water demand management, the National Water Demand Management Centre, and are keen to support further research into other innovative water saving devices. Dissemination of information on demand management and water saving measures to industry took place in conjunction with the National Waste Survey.*

*In terms of legislation to reduce the demand for water, water companies have a duty to promote water efficiency by their customers under section 93A of the Water Industry Act 1991. The Agency has a duty to promote the efficient use of water amongst its customers, ie those licensed to abstract water by the Agency (see Section 3.2). We are also putting pressure on the Government to support our approach to water resource planning of rigorous demand management prior to further resource development.*

*It is difficult to include a specific action on demand management as it forms part of our core work and has no end point and thus would never be resolved. Where there are specific demand management actions, for example work in conjunction with the National Waste Survey, they will be included as actions.*

Although the concept of the economic level of leakage was raised in the Consultation Draft it was felt by some that clarification of it was required, as the water companies may prefer to exploit new resources rather than replace leaking pipes.

*Our comment: it is correct to say that leakage could potentially be justified at high levels if the full environmental costs of a new water resource development are not considered. In considering any proposals for increasing abstraction, water companies will therefore have to justify to us that their leakage levels are, and will remain below the economic level, taking into account the full environmental and social costs of both leakage control activities and the alternative abstractions proposed.*

*However, it is clear that putting a value on the environment is difficult. The most recent methodology that the Agency applies to this area of work was published in February 1998. We recognise that this needs to be developed and improved to enable better judgements to be made on the balance between the needs of the environment and resource development or other alternative measures such as leakage control or demand management.*

*In considering applications to abstract water, the Agency can only permit abstraction if there are no unacceptable environmental effects. However, it is recognised that there may be some abstractions authorised by our predecessor organisations which do adversely affect some sites. Currently, action is already agreed and is under way at some of these sites, a number of which will be included in the programme known as AMP3 (see Section 4.5). Additionally, for sites specially protected under the EC Habitats and EC Birds Directive we are required to review all authorisations potentially impacting them (see Section 3.1.1).*

*In addition to the above, the Abstraction Licensing Review was published in 1998. After consultation, the Government gave details of its decisions in 'Taking water Responsibly', published in March 1999 by the Department of the Environment, Transport and the Regions. However, the full nature and impact of changes will not be confirmed until the final papers are approved by Parliament.*

**A number of consultees were surprised that we could not assess water supply demands on a LEAP area basis and questioned our role in advising local authority planners on water resource issues.**

*Our comment: we have difficulties quantifying public water supply demands within LEAP boundaries because water companies operate and plan water supply within strategic supply areas that have a network of integrated mains supplied from a number of different sources. The sources can lie within, or sometimes outside the area where the water is supplied. The strategic supply areas also often cover a number of whole or parts of river catchments. This is a sensible approach to secure reliable water supplies but it does lead to difficulties since the supply areas are not often coincident with natural or political boundaries for which data on population and households are more conveniently available. Systems are being developed which will contribute to this need but care will need to be taken when drawing conclusions due to the apportionment of information across boundaries (see Section 3.2.1).*

*As a consultee in the planning process, we do not have specific powers requiring detailed assessment of water resources by any developer making a planning application. However, as part of the consultation relating to new development, and also outside this process, we endeavour to inform the planning process on the availability of water resources and the associated issues. In particular, we are keen to increase awareness in sensitive areas where development and the potential for increased demand for water can potentially adversely affect the water environment. Planners armed with this information are then in a better position to make balanced decisions on new development, properly taking water resources into account (see Section 3.2.1).*

**Concern was expressed over the state of the River Bourne and the Nine Mile River and abstraction from Fonthill Bishop.**

*Our comment: we have recently commenced an investigation into the River Bourne and the Nine Mile River (see Section 3.3.2).*

*The wording in the Consultation Draft did not clearly state the position regarding the public water supply abstraction at Fonthill Bishop. The original study on low flows in the upper Hampshire Avon recommended that should abstraction from Fonthill Bishop pumping station increase within its licensed quantity, then the impact on the Fonthill Stream would need to be reconsidered. Further details are given in Section 3.3.3.*

**Concern was voiced that there was a lack of historical abstraction data from the Tidworth Garrison to grant Thames Water Utilities a licence to abstract.**

*Our comment: Crown Immunity precludes the need for the Ministry of Defence to hold a licence for abstraction. Records of past abstraction were used in the assessment of the licence application but the standards of data recording and collection differed from those usually requested via conditions on a new abstraction licence. 1999 is considered a reliable base year to provide information on water abstracted, supplied and leakage so that the position can be regularly reviewed to set sensible targets for leakage and water efficiency. This will then help to establish a long-term strategy for supplying the Tidworth Garrison including how much water can be abstracted from the existing source without causing any adverse environmental effects (see Section 3.3.2).*

**The view was raised that source protection areas should also be produced for private sources used for water supply.**

*Our comment: the background to the development of source protection areas is explained in our Policy and Practice for the Protection of Groundwater. The principles of source protection apply to all potable and food related supplies, regardless of their size. We have undertaken to publish our best assessment of the zones for all major abstractions, but the sheer number of small sources makes it impossible to provide them for all supplies. There are estimated to be at least 26000 private groundwater sources in the South West Region.*

*The monitoring of private supplies is recognised by the Government as a public health issue, and therefore the responsibility for this rests with local authorities. The Private Drinking Water Supply Regulations (1991) specify the requirements for this monitoring.*

### 5.3 Managing our freshwater fisheries

Concern was raised regarding the decline in the wild trout population of the Fonthill Brook, felt to be due to low flows, habitat degradation and eutrophication. Trout also appear to have been replaced with a large influx of chub.

*Our comment: when we last surveyed the Fonthill Brook the trout population appeared to be within the normal range for a stream of this type. We noted that there was a high biomass of coarse fish (mainly roach and perch) which it was assumed had escaped from the lake. Any chub present will have come upstream from the Nadder which is probably a natural expansion of their range, and not connected to the low flow issue (see Section 3.3.3).*

*We are currently investigating the marginal River Quality Objective failure on the Fonthill Brook and we will evaluate the hypothesis that algal blooms are causing the failure (see Section 3.12).*

Many comments were made regarding the stocking of trout, specifically the need for it because angling pressure has been too much for the available population of trout and one consultee felt that it was pure speculation that stocking brown trout could contribute to a lack of successful spawning.

*Our comment: the situation regarding the stocking of rainbow trout on the Avon system is that our advisory committees recommended that we should try to stop the very small amount of stocking which goes on by persuasion. In most parts of the Avon, rainbow trout are very unwelcome and there is a lot of pressure upon us from other users to stop them turning up unwanted, in their waters.*

*The larger a trout is at stocking, by and large the more difficult is its process of adaptation to life in the river, and the stocking of fish significantly larger than those which would naturally occur imposes a significant pressure upon the natural situation.*

*It is not "pure speculation" that stocking brown trout from hatcheries has contributed to the lack of successful spawning. The scientific literature would suggest that heavy stocking with hatchery trout can maintain a high angling mortality rate amongst a declining wild stock and hence lead to its over-exploitation and further decline.*

*Hatchery strains tend not to succeed well at wild breeding and some tend to breed earlier than wild fish in this area. If any crossbreeding takes place between hatchery and wild stocks, adverse genetic change to the wild stock is likely. Stocked fish will also compete with wild fish for territory and can displace smaller individuals to less suitable habitats thereby increasing mortality rates.*

*Future stocking policy will be guided by the National Trout Strategy and areas for research in support of this will be dealt with under our National Research & Development programme. Consultation will take place on this strategy and Regional Fisheries, Ecology and Recreation Advisory Committee have already had the opportunity to start the process with contributions to an initial list of issues.*

The success of gravel cleaning was also questioned by a number of consultees.

*Our comment: work by the Centre for Environment, Fisheries and Aquaculture Science on Southern Region chalk rivers has demonstrated that salmon egg survival is very much improved in cleaned as opposed to uncleaned gravels. We have found in our work on the Piddle, Allen and Avon systems that wild salmonids do use the cleaned areas; however, results on the upper Avon do seem to show poor utilisation, particularly where mature trout are of stocked origin.*

Several consultees raised the question of the need to buy out netting rights for commercial net fishing of salmon in and seawards of Christchurch harbour before spending money on trying to improve salmon fishing on the Avon.

*Our comment: we have a policy of managing salmon stocks to provide maximum sustainable yield. At present very few salmon are being deliberately killed on the Avon, around 10 % of rod caught fish and no net caught fish. Netting takes*

place within a public fishery and we are empowered to regulate its yield but we can not 'buy it out'.

Those with a right to fish there could be paid not to fish, or as now, paid to release any salmon netted. The Wessex Salmon and Rivers Trust currently undertake this payment.

New National Byelaw restrictions on salmon netting and rod fishing have recently been imposed and we are considering whether further byelaw restrictions of nets and rods on the Avon are necessary. At present we are working a voluntary agreement of total catch and release. We could implement a closure byelaw on the net fishery, but this would probably be associated with very tight controls on or even cessation of directed fishing by rods. It is currently felt that the voluntary approach is the best way forward for the stock and the fishery.

The issue of fencing, particularly the action to promote the fencing out of stock to reduce the ingress of silt, raised a number of comments.

Our comment: although this action is taken from our Hampshire Avon Salmon Action Plan (see Section 3.4.2) which we have already consulted on we would agree that fencing should only be considered as one of a range of options and only be used where it offers the best solution for an appropriate balance of interests; the wording of the LEAP now reflects this.

Several consultees felt that coarse fish suffer the same river malaise as trout and salmon and the actions proposed seemed inadequate and much too slow in comparison to the expenditure on salmon.

Our comment: the situation here differs from that of salmon in that with salmon we have clear evidence of a decline in the early 90s with catches down to about one tenth of the 1980s levels. With coarse fish the evidence is not so clear-cut and the surveys we have undertaken since 1987 show no decline over the last 10 years.

Where we have found anomalies, for example the lack of small fish between Downton and Burgate, we have undertaken work and continue to do so to try to gain an understanding of the underlying causes.

Of the factors controlling coarse fish populations we believe that physical habitat features, the availability of suitable habitats for critical life stages and barriers to migration may be the most important factors on the Hampshire Avon. We are involved in the Agency's National Research & Development project, 'Factors Affecting Coarse Fish Recruitment in Rivers', and we will also carry out physical habitat improvement work where appropriate to enhance coarse fish stocks. We will use our increasing knowledge in this area to enhance coarse fish stocks on the river.

It may well be that physical habitat features in particular have changed significantly in the period since the 1940s and that this has caused the reported change in overall abundance. If this is the case, growing knowledge of their habitat requirements, particularly for younger fish, will feed into our programme of physical habitat improvements and of water level management to allow significant population increases.

There is no reference to natural predators such as herons, cormorants and pike and their impact on coarse fish populations.

Our comment: we are focusing on the pressures arising from human activity which can be countered rather than the natural pressures which the population have evolved to live with. However we do accept that there may be indirect links to cormorant and heron numbers from changes in patterns of human activity. We are currently involved in large-scale research on cormorants which is due to report soon and this may have implications for national policy, or even ultimately influence legislation.

Consultees from the New Forest area felt that the Agency should take responsibility for clearing New Forest streams to permit the free passage of fish.

Our comment: natural damming by accumulation of debris, woody debris in particular, is felt to be part of the natural functioning of the stream system. Fish populations have adapted to successfully utilise this habitat and there would not appear to be the justification, given other priorities, for regular clearance for this purpose.

## 5.4 Enhancing biodiversity

It was felt by several conservation organisations that there was a lack of emphasis on the New Forest.

*Our comment: we are aware that the New Forest LEAP (Environment Agency, Southern Region) identified a number of issues in respect of the New Forest streams and their management. However, we are not aware that these issues occur within the South Wessex area specifically the Hampshire Avon catchment. A new action is proposed to enter into discussions with the Southern Region of the Agency, English Nature and the Forestry Commission with the aim of adopting a common approach to issues within the New Forest (see Section 3.1.2).*

It was also felt that the LEAP needed to make more reference to the county Biodiversity Action Plan processes and associated targets, and other actions where they contribute to biodiversity with the suggestion that the LEAP should be a Biodiversity Action Plan itself.

One group felt that there was not enough recognition of reptiles and amphibians.

*Our comment: we have prioritised biodiversity habitats and species according to UK and Regional and local requirements. We appreciate the importance of wetland habitats for a range of amphibians, including Great Crested Newts, and feel there is a need for more information as to their whereabouts, as well as ensuring that the required actions in the Biodiversity Action Plan are carried out (see Section 3.1.4).*

There was a lack of information on costs for biodiversity actions in the Consultation Draft when compared to fisheries work for example.

*Our comment: costings, where available, are given in the LEAP Plan.*

A number of consultees were concerned about the lack of consultation with regard to the biodiversity process.

*Our comment: Biodiversity Action Plans, originating from the Rio Earth Summit, do not have statutory backing but are sets of actions agreed by groups of people in a position to make desired differences. The UK Biodiversity Action Plan has been cascaded down to local level for practical application and for some habitats and species (see Section 3.1.4) we have taken on a leading role. Local plans tend to be co-ordinated at a County level and several Biodiversity project officers have now been appointed, who work very much by persuasion and education. Wherever we are taking an active role we will be keen to carry out the fullest consultation with relevant parties. As discussed in Section 3.1.4 draft lower Avon Biodiversity targets are outlined in Appendix 6.5 and comments are welcomed.*

It was felt by some that while the approach taken to water level management plans was excellent the number of trial sites is very conservative.

*Our comment: following the revised Ministry of Agriculture, Fisheries and Food targets a new approach has been adopted to water level management plans and is discussed in Section 3.5.*

## 5.5 Conserving the land.

Some consultees felt that the LEAP should encompass all probable development considerations over its lifetime.

*Our comment: we have a general duty to comment on Structure and Local Plans (see Section 4.2) and as such it forms part of our core work; the LEAP is designed to identify specific actions. However, in some instances actions related to a particular development proposal may be raised in the LEAP.*

There was some confusion regarding our role in relation to contaminated land sites, specifically those

owned by the Ministry of Defence.

*Our comment: under the new contaminated land provisions responsibility for ensuring remediation of contaminated land falls to the Local Authority, unless the site has been designated a special site, in which case that responsibility passes to the Agency. Under the current draft proposals any Ministry of Defence land that meets the standard qualifying criteria for designation as contaminated land will be identified as a special site and will be regulated and managed in a similar manner to any other non Ministry of Defence qualifying land given special site status. The reference in the Consultation Draft was simply a reflection of the significant Ministry of Defence presence in the plan area (see Section 3.6.1).*

**Concern was also raised regarding effluent discharges from Ministry of Defence sites.**

*Our comment: all discharges of trade and domestic effluent from Ministry of Defence sites are subject to formal regulation through the consent to discharge mechanism outlined within the Water Resources Act 1991 as amended by the Environment Act 1995. Under these legislative controls, Ministry of Defence discharges are regulated and managed no differently to any other discharge to controlled waters. Previous exemptions from regulation of discharges for Ministry of Defence discharges were removed in 1996.*

**The section on our Landcare Project prompted a great deal of discussion from a number of consultees particularly in relation to the contamination of water with pesticides, the impact of the Common Agricultural Policy, Chalk Stream Malaise and the link with agri-environment schemes.**

*Our comment: we endeavour to minimise the release of pesticides into the water environment through the consenting of activities in partnership with landowners and if necessary by enforcement action.*

*One example of the partnership approach is the 'Landcare' initiative, which attempts to gain wide-scale implementation of Agricultural Best Management Practices to control agricultural non-point source pollution. The project is a South Wessex Area initiative to ameliorate the consequences of modern farming at a local scale. Unfortunately there are limited resources available for this initiative once our statutory work has been funded (see Section 3.11.1).*

*We feel that the majority of farmers do not want to pollute the environment, unfortunately current agricultural policy such as the Common Agricultural Policy and the demands of consumers for quality produce at low cost drives farmers to adopt intensive practices. Many of these intensive practices increase the risk of non-point source pollution, for example high stocking densities, increased pesticide and fertiliser use and cultivation of certain crops such as winter sown cereals, maize and potatoes on inappropriate land.*

*In addition to this local initiative, we would like to gain support at a national and European level for minimising the impact of modern farming practices on the environment, through changes in agricultural policy and by influencing the product specifications of farmers' key customers. Influencing these wider issues falls within the remit of staff at our Regional Head Office and National Head Office.*

*The problems of non-point source pollution have probably developed over many years and 'Landcare' sets out to raise awareness of this problem and if necessary, to support farmers with help and advice for them to do something about it. 'Landcare' does not give grants to farmers or tell them how to farm their land. It is possible that the 'Landcare' approach will take several years before real water quality improvement is noticed, not least because it takes time for the river to deal with the excess sediment which has built up. If it becomes clear that this approach of raising awareness is not working, then there will come a point when we will have to look at regulation and use of statutory powers.*

*We did not include mention of the Habitat Scheme (Water Fringe Option) as we are not clear whether the scheme has been successful in improving water quality as originally intended. As outlined in our comments to the Ministry of Agriculture, Fisheries and Food during the recent Habitat Scheme review, our chief concern with regard to its efficacy relates to the fact that it only deals with land adjacent to watercourses. In the Avon, most of the non-point source agricultural pollutant load appears to short-circuit the land that would be available for the water fringe option. However we are pleased to see the Ministry's support for the 'Landcare Project' and we will continue with this constructive dialogue.*

## 5.6 Managing waste

It was felt by a number of consultees that the discussion on waste in the Consultation Draft dealt too much with legislation and not enough with specific local waste issues within the LEAP area.

*Our comment: we are responsible for providing advice to the Government on its Waste Management Strategy and have a regulatory role for the implementation of waste legislation. The text in the Consultation Draft gave an overview of waste regulation and management on a national scale reflecting the Agency's regulatory role. We also provide support and encouragement for other initiatives such as the waste minimisation group and recycling but we have no specific remit for their implementation. Unfortunately there are limited resources available for these initiatives once our statutory work has been funded.*

Some consultees felt more effort should be put into waste minimisation and that consideration should be given to setting up a waste minimisation group for the Avon Valley.

*Our comment: we have a supporting role in the South Wessex Waste Minimisation Group, an initiative started in December 1996, and open to businesses from the Avon valley. As stated in the Waste Minimisation Act 1998, it falls to certain local authorities to take steps to minimise the generation of household, commercial or industrial waste. We would encourage any further initiatives set up in the Avon valley area but do not hold the responsibility for their implementation.*

It was also felt that we should have been more specific about our activities with regard to recycling and other significant recycling schemes.

*Our comment: the responsibility of implementing recycling initiatives falls again to local authorities and is driven by recycling officers. We may encourage such activities but have no direct control over them, although, as part of our own environmental policy recycling initiatives are undertaken at Agency premises within the South Wessex area.*

## 5.7 Delivering integrated river-basin management

There was some confusion between the water companies' improvement programmes and the review of authorisations driven by the EC Habitats Directive.

*Our comment: the water company's improvement programme and EC Habitats Directive are two very different processes but they are linked. The Directive is a driver for improvement; AMP3 is a means of funding. Hence AMP3 does contain Habitat Directive schemes.*

Several consultees raised the question as to why particular areas and species had not been recognised by the EC Habitats Directive.

*Our comment: the designation of Special Areas for Conservation under the Habitats Directive rests with English Nature. Under the Habitats Directive, only those habitats and species of community interest (within Europe) are selected. The habitats and species are listed in the Council Directive as an Annex. All the habitats and species are considered to be those which are vulnerable to extinction across Europe and require active protection.*

It was suggested that there are water quality problems in the River Nadder due to inadequate capacity at Tisbury sewage treatment works.

*Our comment: we have no knowledge of any problems at Tisbury sewage treatment works and the effluent quality is consistently well within consent limits. We have met with Wessex Water to try to identify any problems with the works but no apparent problems were found. However, if it is felt that there are discharges in the vicinity we are not aware of the Blandford Office should be contacted. Pollution incidents can also be reported on our 24 hour telephone hotline, 0800 80 70 60.*

It was felt that reference should be made to Special Ecosystem Targets which were seen as appropriate targets for phosphate levels in river Sites of Special Scientific Interest.

*Our comment: Special Ecosystem Targets were proposed to the then Department of the Environment by English Nature and the then National Rivers Authority back in 1993 but have never been approved. We are not clear that the Special Ecosystem targets will be appropriate for the Avon with its mixed geology which may give rise to some areas of river where the water is naturally richer in nutrients than pure chalk streams. There is a need to identify suitable targets for the trophic status of the Avon which will contribute to maintaining the favourable status of the various conservation interests within the river and its tributaries.*

*However, in the absence of such specific Avon targets, we have considered the Special Ecosystem targets in association with the requirements of the EC Urban Waste Water Treatment Directive in relation to eutrophic sensitive areas. This has helped us to make informed judgements on appropriate controls on nutrient levels in sewage discharges (see Section 3.10).*

Concern was raised that Downton has a low priority on our agenda for carrying out practical work to control flooding and that the Agency is not prepared to listen to local views.

*Our comment: the Agency has looked at the prospect of a capital scheme and whilst there are benefits they do not sufficiently outweigh the costs to enable grant aid to be claimed from the Ministry of Agriculture, Fisheries and Food. The resources available are insufficient to fund a scheme but we are carrying out operational work to manage the existing flood risk. Works downstream at Hale were supported on the basis they would help Downton, further works are also planned during this financial year based on an intensive survey of the river carried out last year. We are also undertaking practical work in relation to the water level management plan initiative (see Section 3.5.2).*

*We will also continue to work with Salisbury District Council with regard to flooding issues on ordinary watercourses which pose as great a risk as main river issues but for which we have no direct responsibility.*

*Considerable time has also been invested in discussing the flooding issue with the local community.*

Numerous consultees raised the issue of recreational access to the River Avon and adjacent land and the need to develop it.

*Our comment: we would welcome any ideas or opportunities for enhancing the recreational use of the LEAP area, and where possible, we have been involved in projects to this end. We are currently involved in the Salisbury Wildlife Project, which is helping to enhance wildlife potential in Salisbury as well as involving the local community. We have also recently contacted local canoe clubs in an effort to be more aware of recreational users needs. Where possible, we promote the use of the river corridor for recreational use, but regularly find that landowners are reluctant to participate. In these terms, we can only encourage and promote rather than enforce, and as yet there are no legal obligations on landowners to provide access. The international status for wildlife of the valley is also widely recognised and increased access needs to be very carefully balanced against this.*

*We are exploring our recreational role more fully at the present time with the appointment of a regional recreation officer based at our Exeter office. In addition, we do support the provision of access facilities if approached and if funds are available, for example construction of a canoe access platform on the River Stour. We have also been working in partnership with local clubs to produce leaflets and interpretation boards in a number of towns in our area.*

The point was made that more effort should be made to promote the development of recreation on the Kennet and Avon Canal.

*Our comment: we will be happy to provide advice and information when requested and to be involved in recreation and conservation orientated projects on the canal in partnership with other organisations. However, it is not a priority for us and we would look to the Inland Waterways Association to take a lead in promotion work.*

## 5.8 Improving air quality

A number of consultees raised the question of the Agency's involvement with the issue of air quality and concerns about the quality of air around mineral workings in the lower Avon valley.

*Our comments: local authorities have the legal duty and funding to manage air quality within their areas under the National Air Quality Strategy. We regulate major industry under the Integrated Pollution Control regime and can monitor the impact of such industries on air quality. Any information we have is kept on public register held by every local authority and us. We share this information with the local authority to assist it in managing local air quality. If an Integrated Pollution Control process is causing failure of the objectives under the National Air Quality Strategy, then we will take appropriate action.*

*Integrated Pollution Control considers releases to air, to water and to land in the context of the environment as a whole. Mineral workings are not covered by this legislation hence we have no regulatory control.*

*The National Air Quality Strategy set objectives for air quality in the UK. Local Authorities have started reviewing air quality in their areas and New Forest District Council have recognised the mineral workings to the north of Ringwood as being processes which produce significant particulate emissions. The Avon Valley will therefore form a key part of the air quality review and assessment process and we will be working closely with the local authority and others to help achieve the objectives of the strategy.*

## 6. Appendices

### 6.1 Duties, powers and interests of the Environment Agency

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

#### Water Resources

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

*The Agency has powers to:*

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

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

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

*Partnership:*

- the Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water
- the Agency acknowledges that new resources may be needed in the future and supports a twin-track approach of planning for water resource development alongside the promotion of demand-management measures
- the Agency seeks to influence planning decisions for new development by encouraging the inclusion of water conservation measures in new properties, particularly in areas where water resources are under stress, and by ensuring that planning authorities allow for the lead time for resource development
- the Agency uses its position of statutory consultee to the planning authorities to secure conditions and agreements to protect the water environment. The Agency will work closely with developers and industry in an effort to encourage and secure protection and good management of water resources

#### Flood Defence

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Waste Management

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Water Quality

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Air Quality

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Radioactive Substances

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

*The Agency has powers to:*

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

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

- the health effects of radiation

*Partnership:*

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

## Contaminated Land

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Conservation

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

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

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

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

*Partnership:*

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

## Landscape

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Archaeology

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Fisheries

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

*The Agency has powers to:*

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

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

- the determination of planning applications which could affect fisheries

*Partnership:*

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

## Recreation

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

*The Agency has powers to:*

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

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

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

*Partnership:*

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

## Navigation

We have no navigation responsibilities in the South West Region

## 6.2 Guide to the Consultation Draft and LEAP Plan

The table below shows the relationship between the issues highlighted in the Hampshire Avon LEAP Consultation Draft and those in this document.

Hampshire Avon Consultation Draft		Hampshire Avon LEAP Plan
Section number	Issue title	New issue number <sup>1</sup>
3.1.1	Securing future public water supplies	3.2
3.1.2	Water resource investigations on the Hampshire Avon	3.3
3.1.3	Protection of groundwater	3.6 & 3.10
3.2.1	Decline of the brown trout fishery	3.4
3.2.2	Decline in catches of salmon	3.4
3.2.3	Maintenance of the coarse fish population	3.4
3.3	Enhancing biodiversity	3.1, 3.2, 3.3, 3.4, 3.9 & 3.10
3.4.1	Potential impact of development on the environment	3.6
3.4.2	Contaminated land	3.6
3.4.3	Impact of land use on water quality	3.11, 3.1, 3.3, 3.4, 3.10 & 3.12
3.5.1	Developing strategies for sustainable waste management	3.7 & 3.1
3.5.2	Minimising waste	3.7
3.5.3	Recycling	3.7
3.5.4	Reducing the fly-tipping of waste	3.8
3.6.1	Protection of nationally and internationally important habitats and species	3.1, 3.2, 3.3, 3.4, 3.5, 3.10, 3.11 & 3.12
3.6.2	Compliance with European Directives (water quality)	3.9 & 3.10
3.6.3	The setting and maintenance of water quality targets	3.12, 3.9 & 3.11
3.6.4	Nutrient enrichment of water	3.10 & 3.11
3.6.5	Maintaining our rivers and flood defences	3.5 & 3.1
3.6.6	The provision of flood warning and emergency response	3.13
3.6.7	Need to protect features of archaeological interest	3.14
3.6.8	The development of recreation	3.15
3.7	Regulating major industries	No local issues identified
3.8	Improving air quality	No local issues identified
3.9.1	Minimising the effect of landfill gas on climate change	3.16
3.9.2	Potential effects of climate change on sea level	3.16

<sup>1</sup> - The main reference is shown first with related references shown in italics.

## 6.3 Biodiversity in the LEAP area

Further details on habitats and species for which the Agency has been assigned actions are given below (see Section 3.1.4)

### (1) - Priority habitats and species

### (2) - Habitats and species of conservation concern

#### Key Habitats

[Reason for inclusion- only published plans listed]

#### Supporting BAP species

#### Chalk rivers

[UK BAP priority habitat, Habitats Directive]

- *Water vole* (1)
- *Otter* (1)
- *White-clawed crayfish* (1)
- *Depressed river mussel* (1)
- *Fine-lined pea mussel* (1)
- *Southern damselfly* (1)
- *Pipistrelle bat* (1)
- *Bechstein bat* (1)
- *Desmoulins whorl snail* (1)
- *Round mouthed snail* (1)
- *Salmon* (2)
- *Bullhead* (2)

#### Coastal and floodplain grazing marsh

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

- *Cut grass* (2)
- *Greater water-parsnip* (2)
- *Pillwort* (2)

#### Reedbed

[UK BAP priority habitat, South West BAP]

- *Bittern* (1)
- *Otter* (1)
- *Water vole* (1)
- *Reed Bunting* (1)

#### Fen

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

- *Water vole* (1)
- *Otter* (1)
- *Desmoulins whorl snail* (1)

#### Saline lagoons

[UK BAP priority habitat, South West BAP]

- *Tentacled lagoon-worm* (2)

#### Potential threats

#### Abstraction

Physical modification

Pollution

Land use change

Inappropriate vegetation management

Invasive species

Reduction in the extent and period of winter flooding

Failure to retain water levels in spring/summer

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

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

#### Poor water quality

Inappropriate water level management

Lack of management leading to succession to a drier woody habitat

Abstraction, and operations leading to drying out

Pollution

Habitat modification (scrub encroachment, inappropriate management)

Pollution, especially nutrient enrichment

Natural succession and sediment movement

Artificial water control

Development, infilling and coastal defence

**Key Habitats**

[Reason for inclusion- only published plans listed]

**Supporting BAP species****Estuaries**

[UK BAP priority habitat, South West BAP]

- Otter (1)
- Salmon (2)

**Standing open water**

[South West BAP]

- Medicinal leech (1)

**Urban watercourses**

[South West BAP, Dorset County BAP]

- Great Crested Newt (1)
- Water vole (1)
- Pipistrelle Bat (1)
- Bullhead (2)
- Salmon (2)

**Seagrass beds**

[UK BAP, South West BAP]

**Lowland heathland**

[UK BAP, South West BAP]

- Southern damselfly (1)
- Medicinal leech (1)
- Black bog ant (1)

**Potential threats**

Dredging, sea defences

Pollution

Recreational pressure

Development pressure

Sea level rise

Exploitation of shell fisheries

Abstraction and/or land drainage and/or infilling

Pollution and/or nutrient enrichment

Inappropriate management and/or neglect

Recreational pressures

Inappropriate stocking

Invasive species

Inappropriate management

Development pressures

Pollution

Over engineering and/or culverting and/or flood defence works

Recreational pressures

Anchoring and mooring issues

Coastal development

Shellfish collection and bait digging

Dredging and dumping of materials

Pollution

Invasive species

Neglect and scrub encroachment

Inappropriate management

Development pressures

Recreational pressures

Heathland fires

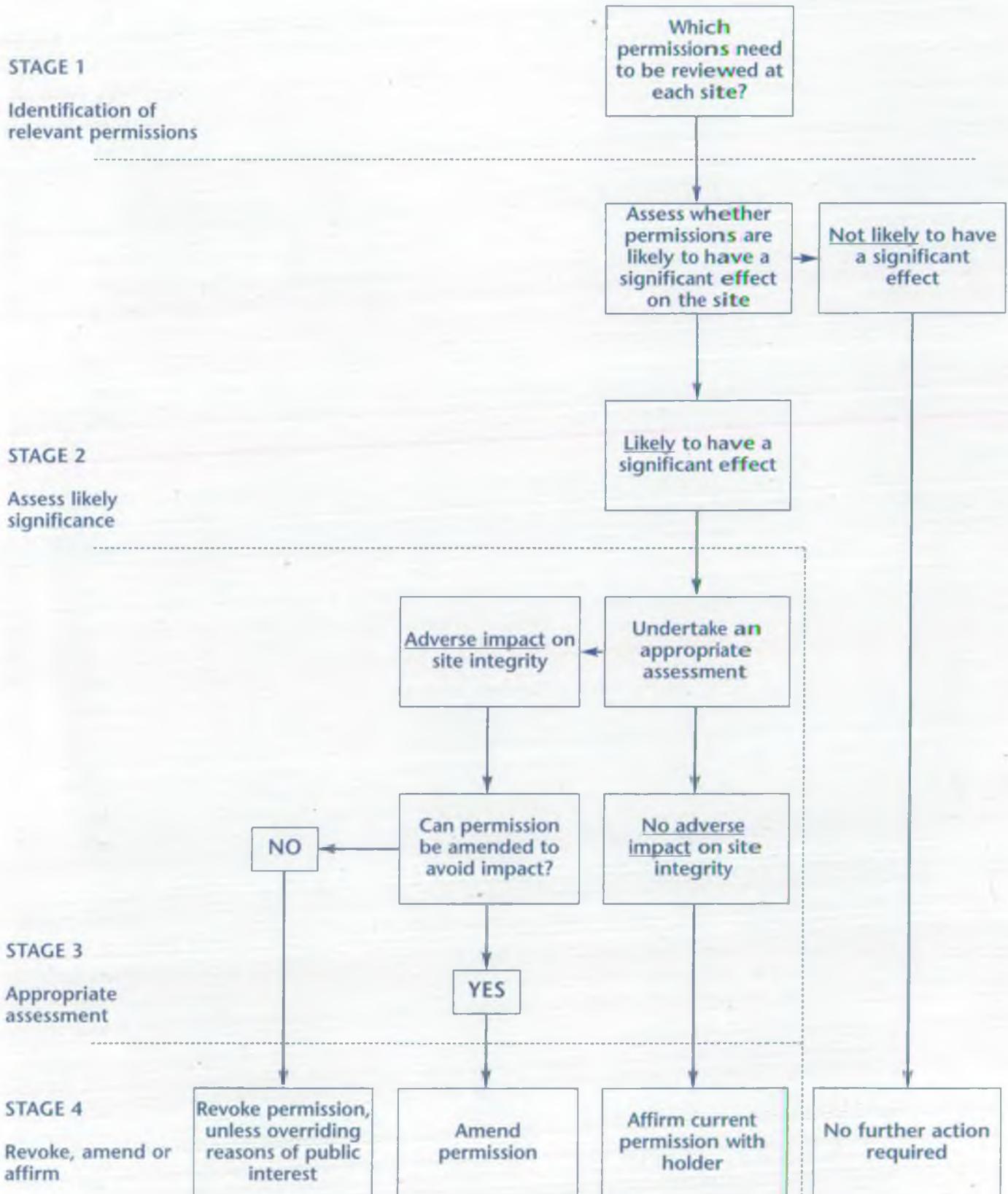
## 6.4 EC Habitats and EC Birds Directive

Summary of details on the relevant sites within the LEAP area are given below (see Section 3.1.1):

Area	Designation	Qualifying interests
Chilmark Quarries	cSAC	Barbastelle bat Bechstein's bat
Great Yews	cSAC	<i>Taxus baccata</i> woods
Pewsey Downs	cSAC	Early gentian
Prescombe Down	cSAC	Early gentian
River Avon	cSAC	Ranunculus habitat Brook lamprey Salmon Bullhead Sea lamprey Desmoulins whorl snail
New Forest	cSAC	<b>European priority interests</b> Mediterranean temporary ponds (one of two outstanding UK locations containing more than 10 % of the UK resource) Alder woodland on floodplains <b>European Interests</b> Nutrient-poor, shallow waters with aquatic vegetation (one of three outstanding UK locations) Wetland heathland with cross-leaved heath North Atlantic wet heaths Dry heaths Depressions on peat substrates (one of three outstanding UK locations containing more than 10 % of the UK resource) Beech forests on acid soils (contains more than 10 % of the UK resource) Beech forests with <i>Ilex</i> and <i>Taxus</i> , rich in epiphytes Dry oak dominated woodland (one of four outstanding UK locations) Old acidophilous oak woods with <i>Quercus robur</i> on sandy plains Stag beetle (one of three outstanding UK locations containing more than 10% of the the UK resource) Southern damselfly Bog woodland (one of four outstanding UK locations)
	SPA	Supports over 300 pairs of nightjars (at least 15 % of the UK breeding population) Supports significant numbers of pairs of woodlarks, Dartford warblers, honey buzzards and kingfisher In winter supports hen harriers (2 % of UK winter population) In summer supports hobby, wood warbler, lapwing, redshank, curlew, snipe, stonechat and redstart Important for assemblages of lowland heathland breeding birds including nightjar, woodlark, Dartford warbler and stonechat
	Ramsar	Qualifies by virtue of its valley mires and adjacent wet heath. Mires and other peatlands cover approximately 16 % of the New Forest and is the largest concentration of intact valley mires of their type in the UK Also qualifies for botanical and entomological reasons A number of nationally rare Red Data Book plant species are found and the New Forest is among the major sites for dragonflies and has a significant representation of a number of nationally scarce species

Area	Designation	Qualifying interests
Salisbury Plain (including Parsonage Down, Porton Down and Salisbury Plain)	cSAC	Juniper on heaths or calcareous grassland Dry grasslands and scrublands on limestone (considered to be one of the best areas in the UK, containing more than 10 % of the UK resource) Semi-natural dry grasslands and scrubland facies: on calcareous substrates Marsh fritillary butterfly (considered to be one of the best areas in the UK)
	SPA	Largest expanse of unimproved chalk downland in North West Europe (representing 41 % of the UK's chalk downland) Contains important populations of breeding stone curlew and wintering hen harriers (in small numbers), quail and hobby Other species include merlin, short-eared owl and Montagu's harrier
Avon Valley (Bickton to Christchurch)	SPA	The Avon valley shows a greater range of habitats and more diverse flora and fauna than any other chalk river in the UK, including one of the largest expanses of unimproved floodplain grassland in the UK Nationally important assemblage of breeding wetland birds, especially important for breeding waders associated with lowland wet grassland Supports Bewick's swans (2.2 % of the UK population) and gadwall (3.5% of the North West European population)
	Ramsar	Important migratory species; white-fronted geese, pochard, coot One of the eight most important areas in the UK for breeding waders of lowland wet grassland Chalk river interest One of the largest expanses of unimproved floodplain in the UK Supports notable assemblages of breeding wetland birds One of the eight most important areas in the UK for lapwing, redshank and snipe Hosts two rare plant species: brown galingale and small fleabane Hosts important invertebrates: scarce chaser dragonfly, rare molluscs Supports important numbers of wintering gadwall and Bewick Swans, white fronted geese, pochard and coot
Dorset Heaths	cSAC	Wet heathland with cross-leaved heath Dry heaths Southern damselfly Depressions on peat substrates
Dorset Heathlands	SPA	Regularly used by 1 % or more of the UK population of five species listed in Annex I of the EC Birds Directive, in any one season (Dartford warbler, nightjar, woodlark, hen harrier, merlin)
	Ramsar	Supports particularly good examples of wet heathland habitats which are characteristic of the heathlands of the Atlantic biogeographical region of western Europe Contains examples of southern wet heaths with Dorset Heath and cross-leaved heath Contains an appreciable assemblage of rare, vulnerable or endangered species of plant or animal High species richness and ecological diversity of the mire communities; contains examples of Northern wet heaths with cross-leaved heath and bog mosses

6.4.1 Summary flow chart of the review of consents process under the EC Habitats and EC Birds Directives



## 6.5 Draft biodiversity targets for the lower Avon valley

Summary of the draft biodiversity targets produced by the Avon Valley Liaison Group for the lower Avon valley (see Section 3.1.4):

Habitat	Targets	Timescale	Lead	Partners
<p><i>Species-rich grasslands</i> Existing areas on current knowledge:</p> <p>MG4 25.5 ha MG5 2.3 ha MG8 28.0 ha M22 1.0 ha M23 4.5 ha</p>	<p>All existing habitat to be maintained in or rehabilitated to favourable conservation condition as defined by English Nature</p>	2005	EN	NGOs
<p><i>Floodplain grazing marsh</i></p>	<p><b>Within the SPA</b> 1250 ha to be maintained in or rehabilitated to favourable conservation condition of which 600 ha should be favourable for ground nesting birds (in particular breeding waders) within the range occupied in 1990 and managed in a manner consistent with the prescriptions in Tier 1c of the ESA</p> <p><b>Indicators</b> Numbers of breeding waders to achieve levels comparable with those existing in 1990, namely:</p> <p>Snipe 53 pairs Redshank 205 pairs Lapwing 225 pairs</p> <p>Wintering waterfowl numbers to meet English Nature's conservation objectives for the SPA</p>	<p>300 ha in ESA type management by 2002 1250 ha in favourable management by 2005 (600 ha in ESA type management)</p>	EN	FRCA Agency NGOs Owners
	<p><b>Between SPA boundary and Salisbury</b> 850 ha to be maintained in or rehabilitated to favourable conservation condition of which 200 ha should be favourable for ground nesting birds (in particular breeding waders) within the range occupied in 1990 and managed in a manner consistent with Tier 1c of the ESA</p> <p><b>Indicators</b> Numbers of breeding waders to achieve levels comparable with those existing in 1990, namely:</p> <p>Snipe 21 pairs Redshank 21 pairs Lapwing 48 pairs</p>	2010	NGOs	FRCA Agency Owners
<p><b>Notes</b></p> <p>1. Priority should be given to maintenance and enhancement of sites currently known to support breeding waders</p> <p>2. Management should have regard to the importance of livestock-trampled margins for specialist flora</p>				
<i>Ditches</i>	Condition and function of all ditches to be assessed	2005	EN in SSSI	FRCA Agency
	All appropriate ditches to be put into favourable conservation condition	2010	EN in SSSI	FRCA Agency
<i>Reedbed</i>	Management of all reedbeds > 0.5 ha for nature conservation	2002	NGOs	EN FRCA Agency
	Create at least 20 ha of reedbed within significant conservation value	2010	NGOs	EN FRCA Agency
	<p><b>Indicator</b> Presence of breeding assemblage of priority reedbed species</p>			

Habitat	Targets	Timescale	Lead	Partners
Standing open water	No further habitat creation required to meet ecological requirements Two lakes at Blashford to be managed for nature conservation objectives <b>Indicators</b> Wintering wildfowl numbers maintained in line with national trends	2002	EN	NGOs Agency
Chalk river Fish	As defined in strategy for EU LIFE Project	As defined	As defined	As defined
• Salmonids • Sea and brook lamprey • bullhead	As defined in strategy for EU LIFE Project	As defined	As defined	As defined
Otter	49 % positive site occupation	2010		
Water vole	Population restored to all suitable habitat	2010		

## 6.6 The setting and maintenance of water quality targets

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

We also manage water quality by applying standards set in EC directives and other international commitments. Failures to comply with these standards are outlined in Sections 3.9, 3.10, 3.11 and 3.12.

We have set RQOs using a classification scheme known as the River Ecosystem (RE) Classification which was introduced by the former National Rivers Authority, following public consultation, in 1994. It replaced a former scheme introduced by the Water Authorities in the late 1970s and used by the National Rivers Authority until 1994. The RE Classification comprises five hierarchical classes as summarised below.

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

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

Failures to meet RQOs are shown as *significant* and *marginal* failures. Significant failures are those where we are 95 % certain that the river stretch has failed to meet its RQO. Marginal failures are those where we are less certain (between 50 % and 95 %) that the stretch has failed to meet its RQO.

In certain circumstances we can *set aside* data, that is we will not take into account some or all of the results of a

particular determinand when we assess compliance with an RQO. We will set aside data where high concentrations of metals or low pH are caused by the natural geology of the catchment. This allows us to protect good water quality reflected by other parameters in the RE classification.

### 6.6.1 Classified stretches

River	Stretch boundaries	RQO	Dated
Deane Water	Littleworth to Milkhouse water	1	
	Milkhouse water to confluence with the Hampshire Avon	1	
Hampshire Avon (East)	Milton Lilbourne to Hill View	1	
	Hill View to Sharcott	2	
	Sharcott to confluence with the Woodborough Stream	2	
	Confluence with the Woodborough Stream to confluence with the Hampshire Avon (West)	2	
Hampshire Avon (West)	Little Horton to upstream of Patney Bifurcation	2	
	Upstream of Patney Bifurcation to confluence with the Hampshire Avon (East)	2	
Bourne Nine Mile River Wylde	Boscombe to confluence with the Hampshire Avon	1	
	Brigmerston to confluence with the Hampshire Avon	1	
	Kingston Deverill to confluence with the Shear Water Watercourse	1	
	Confluence with the Shear Water Watercourse to Warminster STW	1	
	Warminster STW to Henfords Marsh	2	
	Henfords Marsh to Boreham	2	
	Boreham to Norton Bavant	2	
	Norton Bavant to Upton Lovell	2	
	Upton Lovell to confluence with the Till	1	
	Confluence with the Till to confluence with the Nadder (west)	1	
	Upstream of Ditchampton Bifurcation to confluence with the Nadder (east)	1	
	Hart Hill to confluence with the Wylde	2	
	Orcheston to confluence with the Wylde	1	
	Ludwell to confluence with the Sem	2	
Confluence with the Sem to confluence with the Fonthill Stream	2		
Shear Water Till Nadder	Confluence with the Fonthill Stream to confluence with the Fovant Brook	2	
	Confluence with the Fovant Brook to confluence with the Hampshire Avon	1	
	Billhay Farm to confluence with the Nadder	3	
	Upstream of Fonthill Lake to confluence with the Nadder	1	
Sem Fonthill Stream Fovant Brook	West Farm to upstream of Fovant Fish Farm	1	
	Downstream of Fovant Fish Farm to confluence with the Nadder	2	
Ebble	Ebbesborne Wake to Bishopstone	1	
	Bishopstone to confluence with the Avon	1	
Ebble tributary Sweatsford Water Ashford Water	Chalke Valley Fish Farm outlet to confluence with the Ebble	2	
	Rockbourne to confluence with the Ashford Water	1	
	Martin to confluence with the Sweatsford Water	2	
	Confluence with the Sweatsford Water to confluence with the Hampshire Avon	2	
Ditchend Brook Huckles Brook Sleep Brook Dockens Water Linford Brook Ripley Brook	Blissford to confluence with the Hampshire Avon	2	
	Fritham Bridge to confluence with the Hampshire Avon	2	
	North Plumley to confluence with the Hampshire Avon	2	
	Fritham to confluence with the Hampshire Avon	2	
	Red Shot Wood to confluence with the Hampshire Avon	2	
	North Ripley to confluence with the Hampshire Avon	2	

River	Stretch boundaries	RQO	Dated
Hampshire Avon	East/West Hampshire Avon confluence to Netheravon	1	
	Netheravon to downstream of Netheravon STW	1	
	Downstream of Netheravon STW to confluence with the Nine Mile River	1	
	Confluence with the Nine Mile River to Amesbury	1	
	Amesbury to confluence with the Nadder	1	
	Confluence with the Nadder to confluence with the Old River	2	
	Confluence with the Bourne to upstream of Salisbury STW	2	
	Upstream of Salisbury STW to confluence with the Carrier	2	2000
	Confluence with the Carrier to downstream of the Britford Bifurcation	2	2000
	Downstream of the Britford Bifurcation to Downton	2	
	Downton to Downton STW	2	
	Downton STW to Woodgreen	2	
	Woodgreen to confluence with the Ashford Water	2	
	Confluence with the Ashford Water to downstream of Bickton Fish Farm	2	2000
	Downstream of Bickton Fish Farm to confluence with the Huckles Brook	2	
	Confluence with the Huckles Brook to confluence with the Dockens Water	2	
	Confluence with the Dockens Water to confluence with the Linford Brook	2	
	Confluence with the Linford Brook to Ringwood STW	2	
	Ringwood STW to downstream of the Ashley Bifurcation	2	2000
	Downstream of the Ashley Bifurcation to confluence with the Ripley Brook	2	
Confluence with the Ripley Brook to Christchurch (estuary)	2		

## 7. 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)

**AMP** - Asset Management Plan (see Section 4.5)

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

**BAP** - Biodiversity Action Plan

**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

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

**CA** - Countryside Agency

**Controlled waters** - Include all watercourses, canals and water contained in underground strata (groundwater)

**DETR** - Department of the Environment, Transport and the Regions

**cSAC** - candidate Special Area for Conservation

**Cumec** - A measure of flow equating to one metre cubed per second (1m<sup>3</sup>/s)

**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

**Diatoms** - A type of benthic (attached to the river bed, sea floor or aquatic weed) algae

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

**EC** - European Community

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

**EN** - English Nature

**Endocrine systems** - Responsible for the regulation of many different physiological processes. Endocrine-

disrupting substances are essentially either naturally occurring or synthetic substances that interfere with the functioning of endocrine systems resulting in unnatural responses

**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 practices

**EU Life Fund** - Exists to support the development and implementation of the Community environmental policy. One part of the programme, *LIFE - Nature*, funds the protection of endangered habitats and species, particularly projects that contribute to the conservation of sites protected under the Habitats Directive and sites classified as Special Protection Areas under the Birds Directive

**Eutrophication** - Nutrient enrichment of water

**FC** - Forestry Commission

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

**FRCA** - Farming and Rural Conservation Agency; an executive Agency of the Ministry of Agriculture, Fisheries and Food and the Welsh Office. They assist the Government in the design, development and implementation of policies on the integration of farming and conservation, environmental protection and the rural economy

**Highways Authority** - The Department of the Environment, Transport and the Regions is responsible for motorways and trunk roads. 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

**LAs** - Local Authorities

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

**Macrophyte** - Plants

**MAFF** - Ministry of Agriculture, Fisheries and Food

**Main River** - All watercourses shown as such on the statutory main river maps held by the Agency and the Ministry of Agriculture, Fisheries and Food

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

**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)

**NGO** - Non-Governmental Organisation

**NRA** - National Rivers Authority (one of three predecessor bodies to the Environment Agency)

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

**OLDs list** - Operations Likely to Damage; a list tailored to each Site of Special Scientific Interest, identifying those activities that have the potential to damage the site

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

**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

**Qualifying discharge** - A discharge from a sewage treatment works whose connected population exceeds 10,000 Population Equivalents under the EC Urban Waste Water Treatment Directive

**Ranunculus** - Aquatic plant commonly called water crowfoot

**RE Class** - River Ecosystem Class

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

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

**RSPB** - Royal Society for the Protection of Birds

**Salmonids** - Salmon, brown and sea trout and rainbow trout

**SDC** - Salisbury District Council

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

**Section 105s** - 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

**SPA** - Special Protection Area

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

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

**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

**STW** - Sewage treatment works

**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

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

**WTs** - Wildlife Trusts

**WWSL** - Wessex Water Services Ltd

**WWT** - Wiltshire Wildlife Trust

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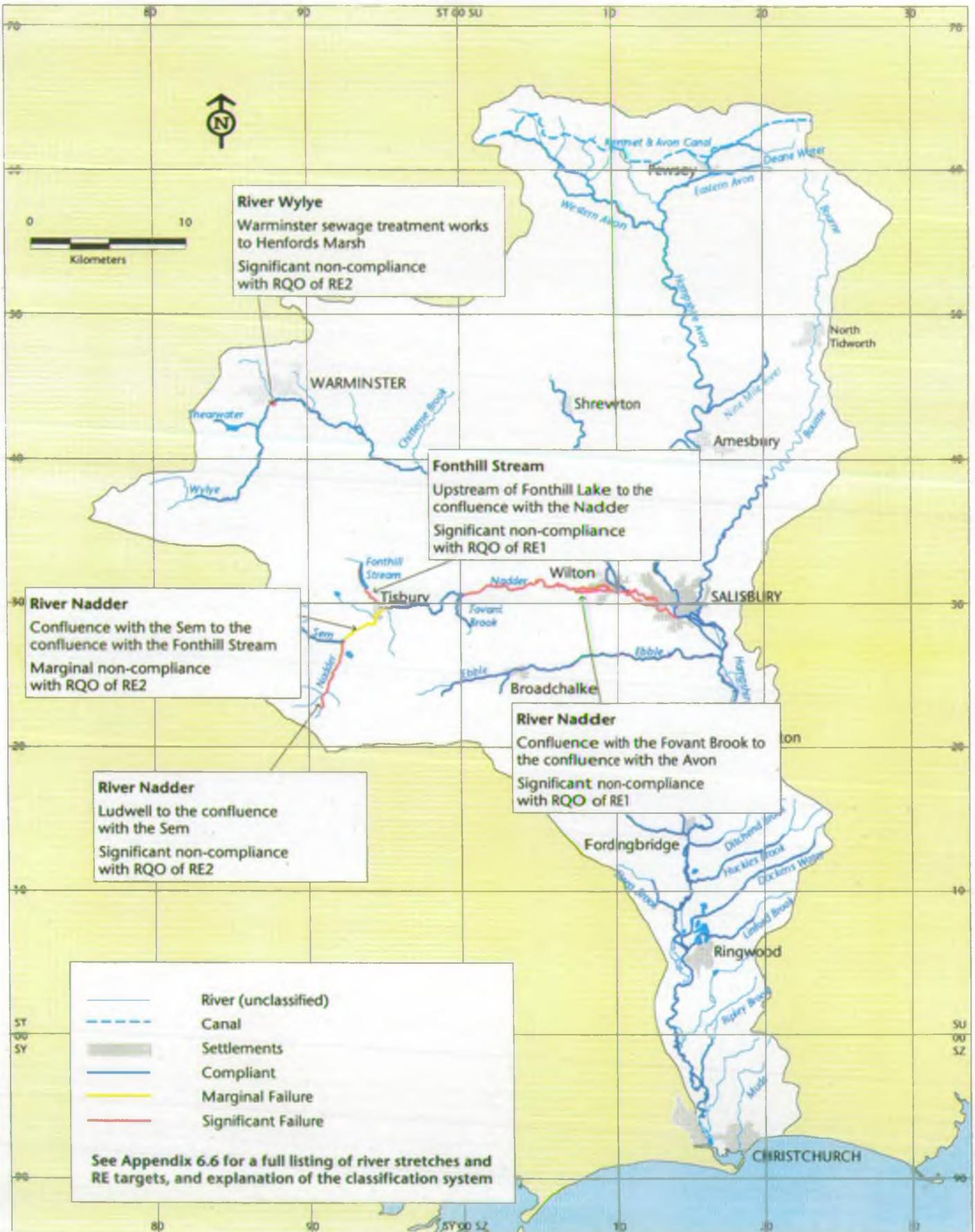
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**Map 2 - 1998 Compliance with River Quality Objectives  
(River Ecosystem Classification)**



## MANAGEMENT AND CONTACTS:

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

Head Office is responsible for overall policy and relationships with national bodies including Government.

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Fax: 01222 798 555



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

#### ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

**0645 333 111**

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

#### ENVIRONMENT AGENCY EMERGENCY HOTLINE

**0800 80 70 60**

For general information about flooding.  
BECAUSE FLOODS DON'T JUST  
HAPPEN TO OTHER PEOPLE

#### ENVIRONMENT AGENCY FLOODLINE

**0845 988 1188**



**ENVIRONMENT  
AGENCY**



*All enquiries to:*  
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