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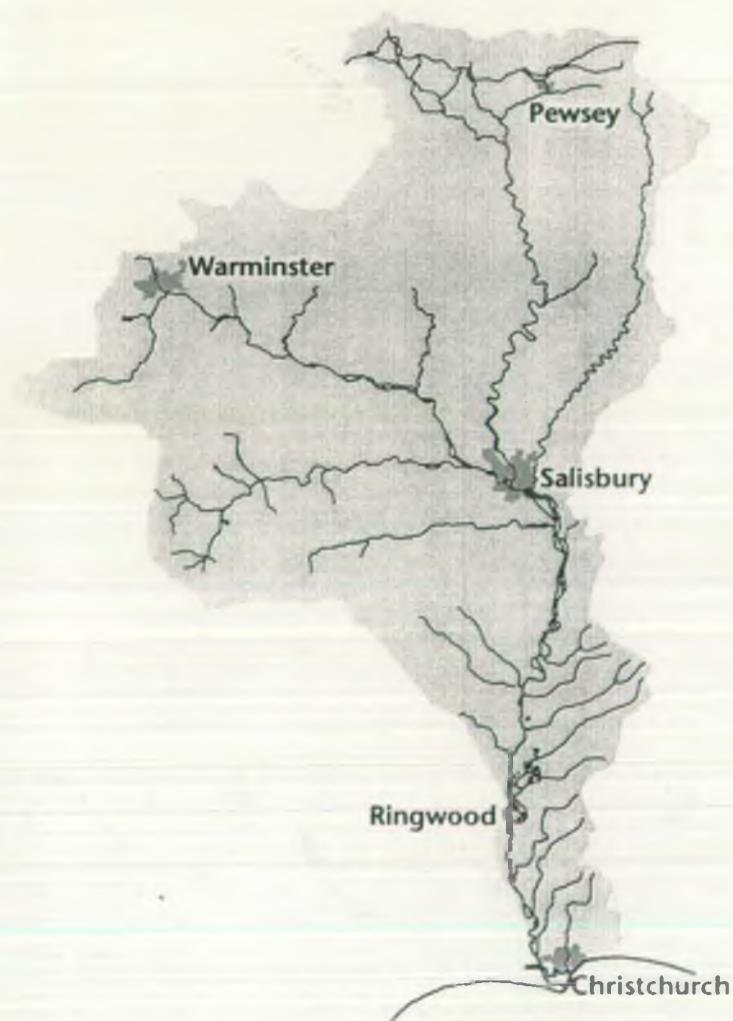


ENVIRONMENT
AGENCY

Hampshire Avon

Catchment Management Plan

Third Annual Review
January 1998



Vision for the catchment

The Hampshire Avon catchment is home to 200,000 people who depend on the water environment in many ways, and value it for the quiet pleasure and enjoyment that it brings their local communities. The upper part of the catchment falls within an Area of Outstanding Natural Beauty, and the river makes an important contribution to the rural economy through tourism as well as through agriculture and recreation.

The catchment provides an important link between three areas: the chalk downland of Wiltshire, the Dorset heathlands and the New Forest. This is reflected in a wide range of semi-natural habitats including good examples of lowland heath, unimproved grasslands and ancient broadleaved woodlands. The river floodplain and associated ditch system is one of the most important in Britain for the diversity of plants and animals which it supports.

The chalk aquifer underlying the upper catchment is a major source of water for domestic, agricultural and industrial purposes as well as the source of all major tributaries in the catchment. The rivers also provide the principal method of assimilating treated industrial and domestic effluent, and are therefore subject to considerable pressures.

Our objectives in the management of the catchment are to:

- ensure that using the cleansing capacity of the rivers to assimilate treated effluents does not impair the considerable ecological and fishery potential of the Hampshire Avon
- develop and implement a water resource strategy which should not only ensure adequate supplies of water for domestic, industrial and agricultural purposes but also maintain sufficient flows in rivers for fisheries, recreation, conservation and effluent dilution purposes

Establishing strong Environment Agency involvement and links with local communities and their representatives is seen as essential so that local views are respected in future development decisions. It is important that local planning authorities include policies in their local plans which protect and enhance the needs of the water environment. The Agency has a commitment to:

- work with all relevant parties to implement the principles of sustainable development

The government has indicated strong support for the conservation interests of the Avon Valley by the implementation of a wide range of conservation designations, including a significant number of Sites of Special Scientific Interest (SSSI), the recently confirmed Environmentally Sensitive Area (ESA) designation, and the proposed classification as a Special Protection Area (SPA) for birds and a Ramsar site. The complete fulfilment of many of these designations requires suitable management of water levels, but this must also take into account the Agency's Flood Defence role. We will achieve this by:

- protecting people and property from flooding
- developing a water level management strategy to provide a basis for agreed floodplain land use management, recognising the need to conserve and enhance the wetland wildlife interest of the valley



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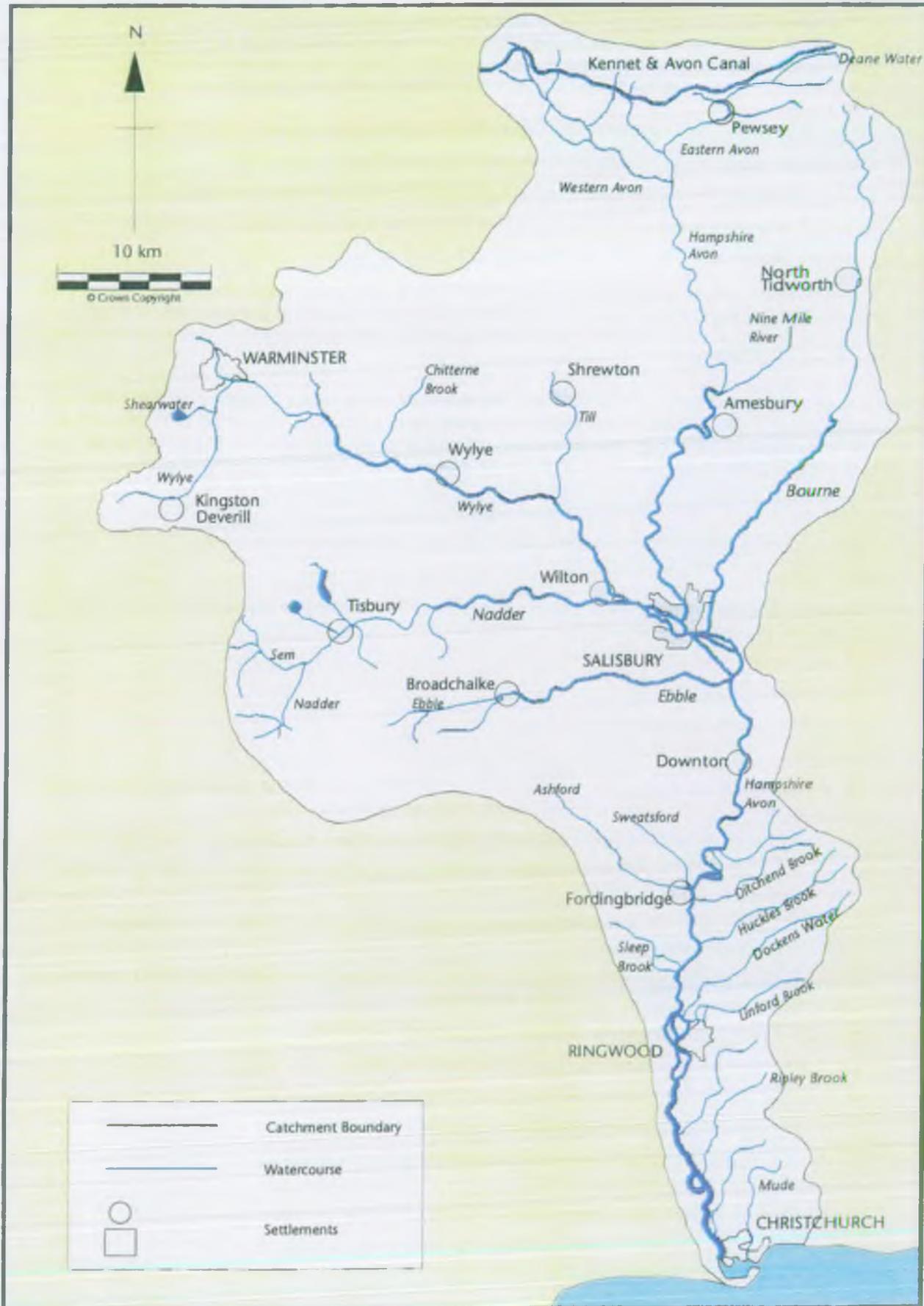
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Map 1: The Hampshire Avon Catchment



1. Introduction

This is the Third Annual Review of the Hampshire Avon Action Plan which was published in the Final Report in 1994. It introduces the Environment Agency, summarises progress made with actions and introduces several new actions. Previous publications relating to this catchment contain more background detail, and this Review should be read in conjunction with these publications:

- Hampshire Avon Catchment Management Plan Consultation Report - October 1992
- Hampshire Avon Catchment Management Plan Final Report - June 1994
- Hampshire Avon Catchment Management Plan First Annual Review - October 1995
- Hampshire Avon Catchment Management Plan Second Annual Review - November 1996

1.1. The Environment Agency

The Environment Agency was formed on 1 April 1996 by bringing together Her Majesty's Inspectorate of Pollution (HMIP), the National Rivers Authority (NRA), the Waste Regulation Authorities (WRAs) and some units of the former Department of the Environment (DoE) dealing with technical aspects of waste and contaminated land.

We provide a comprehensive approach to the protection of the environment by combining the regulation of air, land and water into a single organisation. We cannot work in isolation, but seek to educate and influence individuals, groups and industries to promote best environmental practice, and develop a wider public awareness of environmental issues.

Our Vision is:

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

We will:

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

Our Aims are:

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

We do not cover all aspects of environmental legislation and service to the general public. Your local authority deals with all noise problems; litter; air pollution arising from vehicles, household areas, small

businesses and small industries; planning permission (they will contact us when necessary); contaminated land issues (in liaison with ourselves); and environmental health issues.

1.2. Integrated River Basin Management

Catchment Management Plans and their subsequent reviews will continue to focus mainly on water related issues. This will be the case with this Third Annual Review of the Hampshire Avon Catchment Management Plan. Section 5 gives a brief overview of our responsibilities in other areas.

The area covered by this plan will be reviewed during 1998, and we will produce a Local Environment Agency Plan (LEAP) Consultation Report which will take account of all of our responsibilities. Following public consultation, we will produce a new Action Plan.

Monitoring the Action Plan is an important part of this planning process, and ensures that targets and actions are achieved and that the Plan continues to address relevant and significant issues. This Review summarises the progress made since the publication of the Hampshire Avon Catchment Management Plan Second Annual Review in November 1996.

2. Overview of the catchment

The Avon rises in the Vale of Pewsey and, with its tributaries the Bourne and Wylde, drains the chalk of Salisbury Plain. The Nadder, which is joined by the Wylde near Salisbury, drains the escarpment of the South Wiltshire Downs and the Kimmeridge clays of the Wardour Vale. The Ebbel and the Ashford Water also drain the South Wiltshire Downs and join the Avon downstream of Salisbury and Fordingbridge respectively.

Below Fordingbridge, a number of streams drain the tertiary deposits of the New Forest. The Avon itself drains into Christchurch Harbour, where it is joined by the Stour and Mude before discharging into the English Channel.

The river has a geographical catchment area of some 1,701 km². The total fall of the river from Pewsey to the sea is 110m and the average gradient downstream of Salisbury is approximately 1:1,000.

The other significant waterway in the catchment is the Kennet & Avon Canal, lying approximately east-west across the head of the catchment.

The catchment covers parts of the counties of Wiltshire, Hampshire and Dorset, and encompasses areas represented by Kennet, West Wiltshire, Salisbury, East Dorset and New Forest District Councils, and Christchurch and Test Valley Borough Councils.

The catchment is predominantly rural and has a population of approximately 200,000. The largest towns are Christchurch, Salisbury, Warminster, Ringwood, Amesbury, Fordingbridge and Pewsey. In addition there are several major military establishments on Salisbury Plain.

Industry is mainly light in nature and situated in the towns. Tourism is economically important in the catchment, particularly at Salisbury, Fordingbridge and Christchurch, and the water environment is an important feature.

3. Summary of progress

3.1. Water resources

3.1.1. Hydrological summary (November 1996 to October 1997)

Rainfall totals for the South Wessex Area showed a cumulative deficit for this period of 109 mm, 13% below the 1961-1990 average. Eight of these months had significantly below average rainfall while November, February, June and August were wetter than average. However the summer rainfall of June and August had little benefit in recharging the depleted aquifers.

Groundwater levels at Tilshead on the Salisbury Plain Chalk Aquifer were substantially lower than the preceding two years; the levels at Tilshead have not reached their long term average values since June 1996, and at Woodyates since March 1997. By October 1997 levels had fallen below those of 1976

and were comparable with late autumn in 1975 and 1995.

River flows have been similarly depressed with mean monthly flows below average for the entire period at Amesbury (Avon), Knapp Mill (Avon), South Newton (Wylfe), and in the case of Laverstock (Bourne) since May 1995. This reflects the low groundwater recharge to the predominantly chalk catchment. Flows for the summer period (April-September) fell below those of 1995 but not 1976. Late autumn flows were below or comparable to those of 1995, 1976 and significantly 1975, although it must be remembered that the 1976 drought broke during September.

The stream support scheme operating on the upper Wylfe reached maximum output in July 1997 and extended into November 1997.

Six out of the seven abstraction licences with conditions tied to gauging stations were subject to Cease or Restraint Notices during the period November 1996 to October 1997.

3.1.2. Progress with the Wylfe Low Flow Study

In early 1997 Wessex Water Services were granted consents to drill two new boreholes for augmentation of the Chitterne Brook and the Till. A short test of the Codford scheme during May indicated that sufficient yield should be provided by the Chitterne Brook borehole. The long term pump test began in mid June.

The signs were not so encouraging for the Till augmentation borehole and investigations have been undertaken to find an alternative location. Unfortunately progress has been and continues to be frustrated by access problems.

Discussions have also been on going regarding potential changes to the pattern of pumping at Codford, Chitterne and Brixton Deverill, based primarily on the predictions from the Wylfe groundwater model. A three-phase trial incorporating augmentation of the main Wylfe at Codford and a switch of abstraction from Brixton Deverill to Codford began in October 1997. The long term pump test on the Chitterne Brook continued until the trial was complete in December 1997. We monitored the augmentation trials and the pumping switch to assess their effectiveness.

3.1.3. Additional water resource investigations

We have signalled to relevant abstractors our intention to undertake further and detailed investigations of the environmental impacts of present abstraction arrangements in both the Bourne and the Nine Mile River.

These investigations are now regarded as the next priority for the Avon tributaries converging on Salisbury following the studies of the Wylfe, for which some mitigation has already begun and for which more substantial changes are being sought through the OFWAT Periodic Review of the Wessex Water Services abstraction arrangements. The cost of these changes is to be assessed by Wessex Water Services, and we will prepare a justification for submission to the Secretary of State by May 1998. We would expect these proposals to be accorded high priority in environmental plans for water company expenditure given the high conservation status of the Avon catchment.

The Nine Mile River is most obviously influenced by Ministry of Defence abstractions, and we are already in discussion with them about what provisions should attach to licence conditions when, as expected, Crown Immunity from abstraction licences is removed in 1998.

3.2. Fisheries

3.2.1. Habitat improvements

With the appointment of a dedicated Project Officer, we have been able to direct resources at a number of projects which have delivered on-the-ground habitat improvements for both fisheries and conservation interests. We hope to progress further identified projects in the next year subject to funding.

3.3. Flood defence

3.3.1. The Lower Avon Tidal Flood Alleviation Scheme

This scheme is nearing completion and will afford some additional flood protection to those properties around Bridge Street, Christchurch. It includes flood walls and embankments, flood gates, and piling to prevent percolation.

3.3.2. Progress with Water Level Management Plans

Agreements have been reached with several landowners on the lower Avon to change the management of water levels on the internal drainage channels to favour conservation. Construction of minor hatch structures will provide additional facilities to promote wetland areas for flora and wading bird species without compromising farming needs. This has evolved from our lead in Water Level Management Plans by close contact and goodwill between local farmers and conservation organisations.

3.4. Water quality

3.4.1. River Quality Objectives

Map 2 shows the target River Quality Objectives (see Section 5.5) and compliance with them for the period 1994-96. Where stretches are non-compliant we are currently assessing the reasons and the action required to ensure compliance. Specific problems at Salisbury sewage treatment works and Trafalgar Fish Farm had been identified by the owners, and considerable improvements were carried out in 1996 and 1997 so that consent limits were not breached in these two years.

However, due to the increased loading on the river from Salisbury sewage treatment works, there is unlikely to be an improvement to river water quality in the vicinity until the flow apportionment scheme at Britford is finally resolved or the quality of effluent from the sewage treatment works is significantly improved. In fact it is likely that the river water quality will worsen if the present flow regime and effluent consent limits remain unchanged.

Most of the marginal failures are attributable to low flows and diffuse pollution from agricultural sources; our Landcare project will address this latter issue (see Section 3.4.3).

3.4.2. Bathing waters

In 1997 the EC Bathing Waters at Christchurch Avon and Christchurch Friars Cliff failed to meet the mandatory standards of the EC Bathing Waters Directive. We have agreed improvements to Christchurch and Holdenhurst sewage treatment works with Wessex Water Services. The first phase of these improvements will be the installation of ultra-violet disinfection at Christchurch which is due to be completed by summer 1998, and reductions in the frequency of storm discharges from Holdenhurst sewage treatment works.

3.4.3. Landcare Project

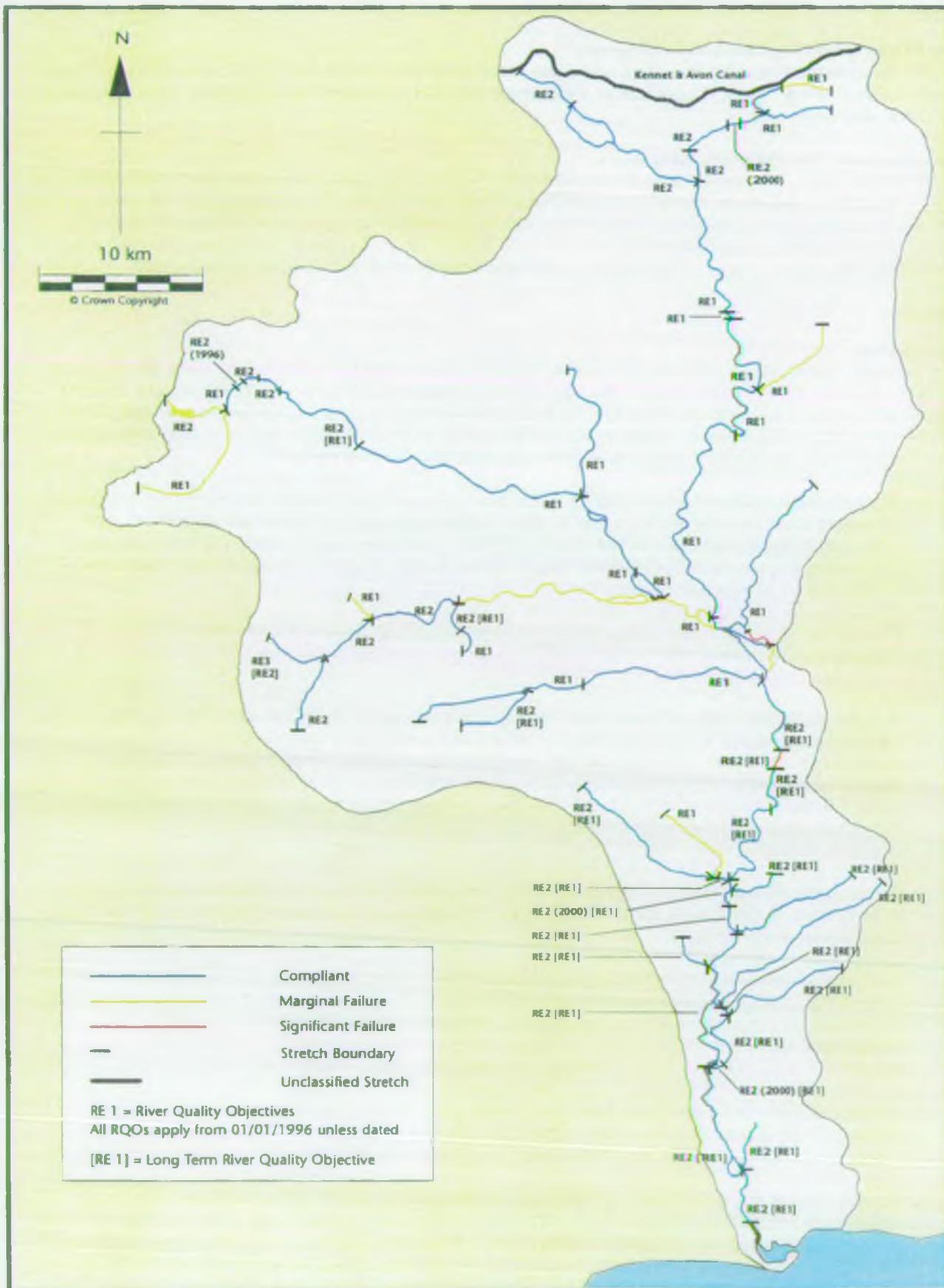
The Landcare Project aims to reduce agricultural non-point source pollution and alleviate problems such as chalk stream malaise, poor salmon spawning success and occasional peaks in pesticide residue concentrations in river water.

Work has continued with monitoring the impact of non-point source pollution on river and gravel water quality. The focus group incident reporting system remains an important source of information for the Agency. In addition, substantial progress has been made with regard to raising general awareness of agricultural non-point source pollution and ways of controlling it. This has been achieved through our presentations to the farming community and promoting media coverage of the issues.

A partnership between the Agency and the farming community is being developed to tackle the problems. Negotiations are currently underway to identify landowners who are prepared to try *Best Management Practices*. These have been used successfully abroad to control non-point source pollution.

Future Landcare work will focus on trials to see which methods work best in the Hampshire Avon catchment and on the demonstration of successful techniques to other farmers. The aim is to influence widespread change toward more sustainable farming practices and we are consequently also trying to identify the most cost-effective methods of influencing farmers. The partnership approach will also be extended to involve other organisations and agencies such as local councils, farm advisory services, highway maintenance agencies and conservation bodies.

Map 2: Compliance with our River Quality Objectives



3.5. Conservation

3.5.1. Biodiversity

The conservation value of the Hampshire Avon and its tributaries in a European context has been formally recognised by its designation as a river Site of Special Scientific Interest and a proposed Special Area of Conservation in 1997. Under the EC Habitats Directive, the floating *Ranunculus* community, salmon, bullhead, lampreys and Desmoulin's snail are the qualifying interests of conservation importance. As one of the most important chalk rivers in Europe, we also have an important role in promoting biodiversity targets for this key habitat.

We have prepared an audit of the ecological interest of the Avon valley, partly in response to the catastrophic and continuing decline in breeding waders. This summarises the available data on species and habitats of importance, and we are proceeding to the second stage of this project which is the drawing up of targets.

The Environmentally Sensitive Areas Review took place in 1997. Many of the ecological targets cannot be realised without a sound and supportive agri-environmental scheme in place. We were pleased to contribute to this exercise, and to see that the draft prescriptions now reflect the importance of the river and seek to protect it.

We are currently working to produce a Conservation Strategy and Consenting Protocol for the river Site of Special Scientific Interest. This will clarify the division of responsibilities between English Nature and ourselves, and focus on how we should deal with potentially damaging activities.

3.5.2. Bid for EU LIFE funding

In collaboration with English Nature, we have submitted a proposal for EU LIFE funding for the Hampshire Avon proposed Special Area of Conservation (designated under the EC Habitats Directive). This will allow a variety of work relating to the species and habitats of the catchment, including:

- identifying the key habitat requirements for the qualifying species
- assessing the specific factors that affect the distribution and abundance of these species
- identifying practical management actions for restoring and improving appropriate habitats
- evaluating monitoring techniques to assess the effectiveness of these solutions

This bid will be progressed through 1997 and 1998, and if it proves successful should provide funding for work from 1999.

4. Action Plan monitoring report

The Action Plan is the means by which the vision of the catchment is turned into reality, and outlines detailed proposals for resolving the issues identified. The following tables update the progress with each issue identified in the Hampshire Avon Catchment Management Plan Final Report for the period November 1996 to November 1997. The tables also report on several new issues raised during this period.

Issues & Actions	By	Cost	97	98	Progress Year Three
Local impacts on water quality from sewage treatment works discharge at Warminster					
1.1a. Issue a more stringent consent to limit the effluent load in the face of increasing contributions from the 'Center Parcs' development	Agency		•		The new consent was issued at the end of 1997
1.1b. The sewage treatment works is being extended to meet the new consent standards.	WWS				The extensions have been completed and the river reach meets most of its water quality targets, although the ammonia levels have worsened considerably
1.1c. Carry out a Drainage Area Study to identify sewerage problems	WWS Agency				The Drainage Area Survey was due to be started during 1995-96, but has been deferred for the present

Issues & Actions	By	Cost	97	98	Progress Year Three
Local impacts on water quality from sewage treatment works discharge at Salisbury					
1.2a. Seek approval from the Department of the Environment and OFWAT for the inclusion of this works within the AMP2 priority list as a <i>High Profile</i> works	see Action 1.2b				Approval achieved and scheme progressed
1.2b. If approval is gained, negotiate and implement the best option to reduce the impact of the effluent on the river	Agency WWS				Scheme completed, but while the effluent quality has remained the same the volume has increased considerably (see Section 3.4.1)
1.2c. Review the impact of the Britford flow apportionment scheme on dilution flows	Agency		→		The flow apportionment scheme needs to react to increased loads in order to achieve water quality improvements downstream of Salisbury sewage treatment works (see Section 3.4.1)
1.2d. Collect data according to our national EC Urban Waste Water Treatment Directive guidelines	see Action 3a				
1.2e. Perform option appraisal for sewerage problems highlighted in the completed Drainage Area Plan and effect improvements	WWS				No complaints received nor sewage debris seen since the improvements were carried out
Local impacts on water quality from sewage treatment works discharge at Ringwood					
1.3a. Investigate the impact of the Ringwood sewage treatment works discharge on the Bickerley Mill Stream	Agency		→		The river water quality meets its target at the new downstream sampling point, and the effluent quality meets its consent standards. However, there are problems achieving an ideal flow regime in the Mill Stream
Local impacts on water quality from sewage treatment works discharge at Pewsey					
1.4a. Renovations to filter beds and humus tanks					Work completed in 1995
1.4b. Seek approval from the Department of the Environment and OFWAT for the inclusion of this works within the AMP2 priority list as a <i>High Profile</i> works					The works in Action 1.4a removed the need for further action
1.4c. If approval is gained, negotiate and implement the best option to reduce the impact of the effluent on the river					The works in Action 1.4a removed the need for further action
1.4d. Perform option appraisal for any sewerage problems emerging from the completed Drainage Area Plan	WWS		→		No further progress
Local impacts on water quality from inadequate farm waste storage facilities and irrigation of farm waste to land especially in the Western and Eastern Avon, Sem and Nadder catchments					
1.5a. Visit all farms in the target catchments to assess pollution risk from farm waste storage facilities	Agency		→		These surveys have been completed; the farms continue to be monitored
1.5b. Farmers to improve farm waste storage facilities where necessary to comply with the Control of Pollution (Silage, Slurry & Agricultural Fuel Oil) Regulations 1991	Farmers Agency		→		Improvements to farm waste systems continue. The number of complaints of farm waste pollution is still falling
1.5c. Farmers to produce effluent management plans where necessary.	Farmers Agency		→		Farm waste management plans are being produced where appropriate, and farmers benefit by knowing which areas are suitable for the spreading of waste. There has been a reduction in the number of these plans being produced since grant aid ceased to be available from December 1994
1.5d. Promote the use of buffer zones where appropriate	see Actions 16a-16c				A leaflet was produced by Wiltshire Wildlife Trust
Local impacts on water quality from discharges from Ministry of Defence bases					
1.6a. Formalise discharge arrangements by setting consent conditions. All discharges were due to be consented by March 1996	Agency		→		Only one application has still to be submitted
1.6b. Monitor the impacts of Ministry of Defence discharges (costs being recoverable from the discharger through the Charging for Discharge system) and review the compliance with conditions.	Agency		→		Monitoring is now taking place and this is now regarded as routine work

Issues & Actions	By	Cost	97	98	Progress Year Three
1.6c. Promote awareness through full liaison with Base representatives. Work is in hand to support a joint project with the Ministry of Defence to develop an environmental strategy for their use of the whole of Salisbury Plain	Agency MoD		→		Several meetings have been held with Ministry of Defence representatives and we have been consulted on road construction across the training area and other projects that could affect water quality
1.6d. Advise those responsible for the maintenance of Ministry of Defence sites on good surface water management practice (drainage from vehicle wash areas and the control of herbicide applications are particularly important issues)	Agency MoD		→		Ongoing discussion with Ministry of Defence representatives
Local Impacts on water quality from backwashing activity at Blashford Lakes Intake					
1.7. Formalise a satisfactory operating regime for backwashing within the framework of a consent. An operating protocol was agreed between ourselves and Wessex Water Services. The current low level of use has reduced the likelihood of an incident	Agency WWS		•		Consent will be in place by March 1998
Local impacts on water quality from discharges from watercress farms					
1.8a. Protect water quality in the receiving watercourse by issuing discharge consents which allow the control of discharge quality	Agency				Consents have been set for all cress farms
1.8b. Monitor and review discharge consents	Agency		→		A report on biological studies was completed in 1996 and work is continuing
1.8c. Joint research project to produce watercress strains with improved resistance to the crook root fungus and watercress yellow spot virus in order to reduce the need to treat with zinc.	Agency Cress Growers Assoc	£24k	•	•	A report will be produced in 1998, but there seems little likelihood of success. Further work with the industry will concentrate on best management practices
1.8d. Monitor the effect of off-label use of pesticides on the receiving water. <i>This relates to the approved use of a pesticide other than that identified on the product label</i>	Agency		→		One watercress farm is cooperating with full scale pesticide use and monitoring. A large settlement lagoon appears to be preventing pesticides passing to the river system
NEW 1.8e. Promote a collaborative project with the industry to identify exactly which operational practices are having a significant detrimental effect on the ecology of the receiving watercourse	Agency Cress Growers Assoc	£20k		•	Subject to funding
Water quality problems in Christchurch Harbour					
1.9a. (Revised) Install ultra-violet disinfection with year-round operation at Christchurch sewage treatment works, to improve the microbiology of EC Bathing-Waters	WWS	£2M	•	•	This is due for completion by summer 1998
1.9b. Rectify the problem of premature use of storm tanks and overflow at Christchurch sewage treatment works by effecting work to increase the flow to full treatment	WWS				The combination of raising the storm setting, upgrading of the works to increase their capacity, and more storm tanks, appears to have effectively reduced the frequency of storm discharges
1.9c. Perform option appraisal for sewerage problems highlighted in the completed Drainage Area Plan and effect improvements	WWS				Most of the major problems appear to have been resolved (see also Action 1.9e)
1.9d. Collect data according to our national EC Urban Waste Water Treatment Directive guidelines.	see Issue 3				
NEW 1.9e Reduce frequency of storm sewage discharge from Holdenhurst sewage treatment works	WWS		→		Wessex Water Services are carrying out a detailed study of the sewerage system to determine ways of reducing storm spills from Holdenhurst sewage treatment works
NEW 1.9f. We will assess the impact of the planned improvements for Christchurch and Holdenhurst sewage treatment works on EC Bathing Water quality	Agency	unknown	→		If necessary, we will negotiate further improvements to Wessex Water Service's sewage discharges
Review of Target Water Quality Objectives in the catchment					
1.10a. Review the River Quality Objectives for the Hampshire Avon catchment	Agency				The review was completed in 1996. Compliance is shown in Map 2 and we continue to investigate all non-compliant reaches

Issues & Actions	By	Cost	97	98	Progress Year Three
The occurrence of atrazine in both groundwater and surface waters is of concern					
2a. Farm campaign to raise awareness of the issue and promote best practice for the safe use of pesticides	Agency		→		Atrazine concentrations are reducing following farm campaign to highlight the problems of pesticide usage and disposal of washings and empty canisters. An Agricultural Pesticides and Water leaflet is now available covering canister washings and disposal
2b. Continued monitoring to establish extent and trend of atrazine occurrence	Agency		•		Monitoring is continuing using drinking water-supply boreholes as sampling points; results show that levels are reducing and have not exceeded the EC Drinking Water Directive
2c. National research project to develop best practice guidelines to ensure that waste pesticides are efficiently disposed of	Agency	£40k	•		The final report quantifying point source inputs of pesticides to river catchments was completed Autumn 1997 and will be published shortly
2d. National research project to develop more environmentally friendly methods of rotational arable farming to reduce pesticide usage	Agency MAFF	£105k	•		Several projects are now underway including a dairy farming project with ADAS Winchester Experimental Farm and an arable farming project with Bristol University Long Ashton Research Centre
2e. Our National Centre of Expertise on Toxic and Persistent Substances has raised atrazine nationally with the Ministry of Agriculture, Fisheries & Food and the Health & Safety Executive	Agency MAFF HSE				<p>Atrazine has been banned for non-agricultural use, and the manufacturer's recommended application rates for use on maize have been reduced to 3 l/ha.</p> <p>A partnership has been set up with the Maize Growers Association to raise awareness about atrazine pollution, and has resulted in the production of an awareness leaflet, and a booklet on managing maize. The booklet contains detailed advice about good pesticide practice.</p> <p>Problems about mixing and filling operations have been raised with the industry. In some areas, farmers have been installing facilities for proper containment of any spills during such operations.</p>
Eutrophication					
3a. Collect data according to our National guidelines to investigate the potential nomination of <i>Sensitive Waters</i> to be designated under the EC Urban Waste Water Treatment Directive. This monitoring will continue regardless of the approval of <i>Sensitive Water</i> status	Agency	unknown	→		Following investigation, we consider the Hampshire Avon below Salisbury to qualify as a <i>Sensitive Water</i> under the EC Urban Waste Water Treatment Directive and will recommend this to the Department of the Environment, Transport and the Regions. If this is approved then nutrient removal will be required at Salisbury and possibly Ringwood sewage treatment works
3b. Promote land use practices which reduce runoff of nutrients. A range of research projects are in hand to promote awareness of diffuse pollution issues and to develop a strategy to influence land management. We will also continue to monitor water and gravel quality to gather evidence of non-point sources of pollution	Agency		→		The best practice research project has reported, and our Landcare project is underway (see Section 3.4.3). We are producing a guidance leaflet for internal use, and the Ministry of Agriculture, Fisheries & Food will produce a leaflet on soil erosion. Soil erosion control visits for farms are also being planned

Issues & Actions	By	Cost	97	98	Progress Year Three
NEW 3c. Continue monitoring the trophic status of Christchurch Harbour	Agency	unknown	→		Although Christchurch Harbour was proposed in 1997 as a candidate <i>Sensitive Water</i> under the EC Urban Waste Water Treatment Directive and as a <i>Polluted Water</i> under the EC Nitrates Directive, it was subsequently not approved. We will continue to monitor its status and consider its resubmission in the 2001 review
NEW 3d. Collaborative project with English Nature to model the inputs and balances of nutrients in the Avon	Agency EN	£1k	•		This should identify the relative inputs from sewage and agricultural sources, and their potential significance to the conservation status of the river
Groundwater contamination					
4a. Implement our Policy and Practice for the Protection of Groundwater	Agency		→		Now regarded as routine work
Water resource investigations on the Hampshire Avon					
5.1a. Results of current investigations on the Hampshire Avon (upper and lower) to be assessed and strategy defined	Agency				Action completed in March 1996. Any major future development proposals would be expected to be identified within water company business plan reviews
5.1b. Regional Water Resources Strategy to be produced for the area	Agency				Completed in April 1995. A revised strategy will be published in 2000 following the OFWAT Periodic Review
5.1c. Strategy contains reference to possible storage reservoirs in the lower Avon for which baseline environmental studies were to be identified by March 1996	Agency	£1k	•		No new opportunities have yet been revealed for new storage reservoirs but the potential for the enlargement of the Blashford Lakes will be explored in strategy development, and a method for scoping baseline studies has been developed
5.1d. Construct two new boreholes for augmentation of the Chitteme Brook and the Till, and undertake test pumping and review seasonal operating regimes of existing public water supply boreholes in the Wylve catchment	Agency WWS	£800k	•	•	Augmentation of the Chitteme Brook is being trialed with some indication of initial success with the return of brown trout. Attempts to establish an augmentation borehole for the Till are currently frustrated by access problems. Testing of a switch of abstraction quantities from Brixton Deverill to Codford has commenced
5.1e. Produce an explanatory brochure for public dissemination of the findings of the Wylve studies and future plans	Agency				Leaflet produced in October 1996
5.1f. With the co-operation of water companies and in the light of recent experience, review the needs for future water resources developments and the potential for their opportunities in collaboration projects in the lower Avon	Agency BWHW WWS		→		Recent discussions with the water companies gives encouragement that they are moving towards agreement on the integrated operation of sources. The added flexibility this would provide is to be assessed in the current review of their water resource plans
Define environmental flow need					
5.2a. Develop flow recommendations using fish suitability curves with IFIM/PHABSIM studies to provide a firm scientific basis for identifying detrimental impacts and determining in-river flow requirements	see Action 5.2c				Data collected in 1994-95
5.2b. Continue investigations regarding the definition of environmental flow needs for the lower Avon	Agency				In the current absence of a nationally coordinated project involving the Avon as a pilot area, we will prepare a model for flow protection using the best available methodologies in conjunction with Action 5.1b
5.2c. Utilise PHABSIM data in an IFIM study of various sites on the Wylve system to assess physical habitat availability for brown trout	Agency	£60k	•	•	This study is continuing, but has been delayed due to natural erosion of surveyed cross-section and as a result of limited flow calibration opportunities. Flow recommendations are expected in 1998

Issues & Actions	By	Cost	97	98	Progress Year Three
S.2d. Undertake a review of the Wylfe fishery production and angling conditions to assist interpretation of the Phase 2 study hydrological findings and the outcome of Action 5.2c	see Actions 5.2e and 5.2f				The 1996/97 fisheries surveys and questionnaire have been completed and reviewed by a fisheries consultant. The report indicates that poor performance of fisheries in the middle and lower Wylfe in recent years has been mainly due to the 1988-92 drought and the reduction of flow caused by abstractions and recommends further fisheries surveys
NEW 5.2e. Monitor closely fisheries performance in the middle and lower Wylfe to evaluate the impact on fishery performance of possible measures to relieve low flows and to assist in the interpretation of the outcome of Action 5.2c	Agency	£5k	→		Detailed annual autumn fish population surveys were started in 1997 with particular emphasis on the recruitment to wild trout populations
NEW 5.2f. Angling quality study to define angling flow needs and to assist in the interpretation of the outcome of Action 5.2c commenced June 1997	Agency	£30k	•	•	Data collection is progressing on three reaches of the Wylfe, each comprising between four and six sites
NEW 5.2g. Define success criteria for <i>Ranunculus</i> . A study of <i>Ranunculus</i> was scoped in autumn of 1997	Agency	£42k	•	•	The study aims to provide criteria for the success of <i>Ranunculus</i> in terms of how its growth is influenced by factors such as river flow, depth, nutrients, weed cutting, grazing by swans and sediment. These criteria will be used practically to assist in appropriate river management
NEW 5.2h. Comparison of photographic records of the upper Wylfe catchment taken in the early 1970s and 1990s	Agency	£2k	•		We hope to document changes in land use, vegetation, the physical watercourse and flow, to help us in assessing likely impacts of future water resource strategies and to monitor improvements following their implementation
NEW 5.2i. Further ecological surveys of the upper Wylfe catchment to supplement our knowledge of the conservation value of the area in the light of the forthcoming OFWAT Periodic Review of the Wessex Water Services arrangements and the rising conservation status of the catchment	Agency			•	These will include River Habitat Surveys of the Chitterme, Till and upper Wylfe, River Corridor Surveys of the Chitterme and upper Wylfe, macrophyte surveys of the winterbourne reaches, macrophyte baseline studies on the upper Wylfe, re-analysis of the 1995 invertebrate data for the Wylfe, and invertebrate studies on the winterbournes
Managing abstraction in the catchment					
5.3a. Develop groundwater management strategy in areas where resources are already fully or significantly allocated	Agency		→		Now regarded as routine work
5.3b. Resolve concern over sustainability of existing environmental needs and other legal uses	See Actions 5.3d, 5.2b, 5.1f				
5.3c. Plan resource management arrangements for droughts	Agency				We now have powers to determine drought permit applications and have made the necessary arrangements for the execution of these powers
5.3d. Continue water abstraction licence enforcement in the catchment	Agency		→		Now regarded as routine work
5.3e. Identifying the means by which water abstraction licence of entitlement holders can monitor their abstraction. This project has been completed, but the cost of and responsibility for the installation and maintenance of measuring devices is with the licence holder	Agency Licence holders				Implementation is still outstanding at fish farms greater than 10Mld pending discussions at National level with the British Trout Farmers Association regarding continuous flow monitoring. Area staff are collecting information for the National discussion. Regional advice is awaited on interpretation of policy regarding continuous flow measurement
NEW 5.3f. Investigate the need for a revised operating strategy at Matchams and Knapp Mill water supply intakes to minimise their impact on salmon migration	Agency	unknown	→		The salmon is one of the qualifying species of conservation importance under the EC Habitats Directive

Issues & Actions	By	Cost	97	98	Progress Year Three
Flow monitoring					
5.4a. Completion of Stockton Park gauging station on the Wylve	Agency				Commissioned in 1994
5.4b. Feasibility study for new gauging station on the Ebble	see Action 5.4c				Study completed in August 1994
5.4c. Design and construct Ebble Gauging Station when resources allow	Agency				Nunton Bridge gauging station was commissioned in December 1996
Assess the extent and impact of siltation and compaction of salmonid spawning gravels					
6a. Report on salmon spawning gravels in the Wessex region	Agency				Report produced in 1994
6b. Gravel improvement project	Agency	£3.5k	→		2,400m ² of gravel was cleaned in 1997
6c. Gravel improvement evaluation	Agency				The evaluation was completed in 1995 and benefit identified
6d. Assess potential of buffer zones.	see Issue 16				
NEW 6e. Where there is serious stock damage to river banks, we may contribute to the fencing of the bank	Agency	£2k	→		This is part of our work on habitat improvement (see Issue 16)
Decline in catches of large spring salmon (Issue revised in 1995; to protect all salmon stocks)					
7a. Rod fishing restricted to fly only before May 15th.	see Action 7d				Implemented and being evaluated
7b. Angling season shortened by one month	see Action 7d				Implemented and being evaluated
7c. Netting season restricted to 15 April-31 July	see Action 7d				Implemented and being evaluated
7d. Review the effect of the above byelaw changes	Agency		→		Reviewed as part of the Salmon Action Plan. New byelaw proposals are being prepared and should go to the Ministry of Agriculture, Fisheries & Food shortly
7e. Production of R&D Note 202 <i>Genetic aspects of spring run salmon</i>					Produced in 1994
7f. Ongoing work within national programme to increase spring salmon stocks. <i>National research is continuing</i>	Agency		→		Ongoing national research on genetic stock discrimination is developing techniques which could be utilised on the Avon for identifying within-catchment variations
7g. Install fish counter at Knapp Mill to improve data on status of spring salmon stocks and allow improved management. <i>Counters were installed in fish passes during 1994 and £6k was spent in 1995 on verification. Side viewing cameras to improve species identification are being installed</i>	Agency	£4k in 1997	→		Progress on counters in 1997 prevented by changes to the operating regime at Knapp Mill. However, work is continuing with the target of counting all fish from 1998
7h. Release of fish from nets and the promotion of angler catch-and-release. A leaflet has also been produced on this project	Agency WSA	£6k	→		119 salmon were purchased from nets by Wessex Salmon Association and released to the river. Early figures suggest a return rate of over 50% for rod-caught catch-and-release fish in 1997
7i. Extra enforcement using Fishery Assistants. <i>One assistant appointed in 1995</i>	Agency	£0.5k			We are looking to recruit more Assistants
7j. Avon Migration Study carried out in 1994-95 and prioritised recommendations produced	Agency				The high and medium priority recommendations have now been implemented. Outstanding issues will be addressed as part of the Salmon Action Plan
7k. Artificial propagation and stocking of salmon by Wessex Salmon Association. We provide microtagging of all released fish to allow assessment of effectiveness	WSA Agency		→		This project has continued to perform very poorly; approximately 11,000 parr have been tagged and released since 1995 and there have still been no returns to date
7l. Undertake a genetic examination of Avon salmon stocks and provide a baseline against which any future change can be measured	Agency				This was completed in 1996 and shows that the Avon stock is in accord with that expected in a pure chalk stream population
NEW 7m. Salmon Action Plan produced during 1997. Actions are chosen to protect and maintain the special characteristics of the Avon salmon stock	Agency	£7k	•		We are currently working to find sponsors for the Actions in this Plan
NEW 7n. National research project on the decline of chalk stream salmon started in 1997 to improve our understanding of the mechanisms controlling chalk stream salmon populations to allow more efficient management	Agency MAFF IFE	£10k pa	→		The Phase 1 technical report is due in March 1998 with recommendations for subsequent investigations

Issues & Actions	By	Cost	97	98	Progress Year Three
NEW 7o. Development of improved channel morphology for salmon	Agency	subject to funding	→		The scope for increasing the spawning range by removal of obstructions will also be assessed (see also Issue 18)
NEW 7p. We will assess the potential for fish-friendly smolt counting on the Avon	Agency	unknown		•	We have spent £0.8k on a scoping study and will carry out its recommendations subject to funding
NEW 7q. Increase the frequency of smolt counting on the Nadder to annually	Agency	subject to funding		•	
Decline of the brown trout fishery in the upper catchment					
8a. Survey of upper Avon trout populations and invertebrates	Agency	£6k	•		The 1997 survey of Wylfe trout populations in relation to low flows has been completed and is being analysed. A limited invertebrate study and report was completed in 1996 (see also Action 8i)
8b. Investigation of wild trout breeding success. The Game Conservancy Trust project will take place from August 1995 - August 1998. See also Action 7j	GCT	£75k	•		The Game Conservancy Trust project is ongoing, but no results have been published yet
8c. Gravel improvement work in co-operation with fishery keepers. We make the gravel cleaning equipment available for loan	Agency Owners	£2k	→		The uptake appears to have increased each year. Further equipment was purchased in 1997 (£1k) (see also Action 6b)
8d. Flow recommendations for tributaries using brown trout suitability curves	see Action 5.2				
8e. Assess habitat benefits from buffer zones within our Landcare project	see Actions 3b and 16				
8f. Stocking of rainbow trout. We are attempting to stop this practice by persuasion	Agency		→		This practice appears to be diminishing from an already low level
NEW 8g. A number of habitat improvement schemes have been identified and progressed this year	see Actions 18b and 18c				These initiatives will significantly enhance the habitat for fisheries
NEW 8h. Wylfe angling quality study	see Action 5.2f				
NEW 8i. We have commissioned a review of the mayflies of southern chalkstreams	Agency IFE	£3k	•		We will consider further studies depending on the outcome
Decline in coarse fisheries					
9a. Investigate anomalies in length distribution of Avon coarse fish identified in 1991 NRA survey	see Action 9c				Analysis of the 1997 survey should show whether this anomaly still exists
9b. Investigate possibility of improved migration conditions at obstructions	Agency				The Avon Migration Study was carried out in 1994-95. To some extent further improvements will depend on Action 9c
9c. Repeat Hampshire Avon coarse fish survey	Agency	£25k	•	•	The survey was carried out in autumn 1997 with the results available in spring 1998
9d. Improve coarse fish habitat by water level management	see Issue 10				
9e. Concern over the impacts of fixed eel traps on other species. We will monitor trapping operations	Agency				A further audit was carried out in 1997. We are currently considering what our future policy on eel traps will be
NEW 9f. Collaborative project with Salisbury Angling Club to rehabilitate a section of river at Stratford sub Castle which has been severely degraded by cattle poaching of the banks	Agency	£2k	•	•	Groyne have been constructed to help restore a viable coarse and salmonid fish population. Subject to further funding, we will assess the changes resulting from these structures and incorporate further features to increase the fishery and conservation value
NEW 9g. A number of habitat improvement schemes have been identified and progressed this year	see Actions 18b and 18c				These initiatives will significantly enhance the habitat for fisheries
NEW 9h. Carry out an investigation on the Downton-Fordingbridge section which is apparently under-utilised by coarse fish and salmon	Agency	£2.5k	•	•	We are looking at the impact of water quality, abstractions and channel morphology
Water level management, current land use and operational activities are perceived to be compromising the wetland and aquatic wildlife interest of the valley					
10a. Develop a sustainable water level management strategy for the river and floodplain to provide a basis for future management, assist with the implementation of Environmentally Sensitive Area schemes and establish demonstration sites. See also Action 10e	Agency MAFF EN Owners	£70k	•		We contributed to the Environmentally Sensitive Area Review to establish ecological benefits for flood plains and rivers

Issues & Actions	By	Cost	97	98	Progress Year Three
10b. Review existing operational and maintenance plan for the Avon Valley SSSI	see Action 10f				
10c. Continue to use Weedcutting Liaison Group to resolve short-term weedcutting decisions. Review activity of this group in the light of strategy	Agency	£10k	•	•	Group meets once every 2 years, and an audit is now likely in 1998. Consultants have been appointed to review the weed cut in line with Operational & Maintenance Plan requirements for the River SSSI
10d. Continue with development of 'ONDA' river management model to aid objective development of strategy	Agency				No further action is presently being considered on this
10e. Prepare Water Level Management Plan to the Ministry of Agriculture, Fisheries & Food national guidelines	see Action 10h		•		Both the Strategy Plan and Local Trial Area Plans have been agreed with English Nature and the Royal Society for the Protection of Birds. Further development of these plans are proposed for 1997-98
10f. Produce a Conservation Strategy and Consenting Protocol for the river. <i>Significant lengths of the Hampshire Avon and certain tributaries have been added to the original Site of Special Scientific Interest</i>	Agency EN		•		This document will be completed by March 1998, and a review of the existing operational and maintenance plan will be incorporated
NEW 10g. Salisbury Wildlife Project to establish opportunities for improving amenity and wildlife habitats within Salisbury	WWT Salisbury District Council Agency		→		A project officer has been appointed and we have helped in the production of a leaflet. We are investigating possibilities for further funding
NEW 10h. Survey needs have been identified for Water Level Management Plan trial areas and will be carried out	Agency	£3.5k	•		We will look at key communities including wetland molluscs, fish in ditches, water-level sensitive grassland and overwintering wildfowl
Flood defence improvements to protect people and property					
11a. Tidal defence scheme on the lower Avon at Christchurch	Agency MAFF	£2.1M	•		Stage 2 being constructed and will be completed early in 1998
11b. Flood alleviation scheme on the lower Avon at Downton	Agency MAFF	£620k			This scheme has been deferred until after 2003-04
11c. Tidal defences at Christchurch Harbour	Agency MAFF	£900k			This scheme is not viable and has been deferred for the present
11d. Flood alleviation scheme on the lower Avon at Ringwood	Agency MAFF	£17k			This scheme has been deferred until 2001-02
11e. Evaluation of a flood alleviation scheme for Tisbury	Agency				This scheme could not be justified and will not be promoted
11f. Annual review of capital programme	Agency		→		Draft Medium Term Plan (Capital Programme) was agreed by the Local Committee in December 1997 and the Regional Committee in January 1998
11g. Implementation of Flood Defence Standards of Service Management System including flood warning	Agency	£26k in 1998 for all South Wessex Area	•	•	Flood warning level of service survey is being undertaken. Pilot surveys were completed in 1997 to refine the methodology, and the Avon is scheduled for 1998
11h. Evaluation of a flood alleviation scheme for Wylfe	Agency	£28k			The study concluded that works may be justified, and may be carried out in 2002-03
11i. Evaluation of a flood alleviation scheme for Norton Bavant	Agency				This study concluded that capital works were not justified and some current expenditure may be reduced
11j. Following a sea defence survey, areas in Christchurch have been identified at risk from flooding	Agency	£400k			This study was completed and works programmed for 2003-04
Impact of large trout farms					
12a. Seek to work with the fish farms to encourage support for the objectives of the Agency. See also Action 9b	Agency				Some screening and channel works are still outstanding. New legal powers will be available from January 1999
12b. Monitor compliance with discharge consent conditions	Agency		→		Now regarded as routine work
12c. Monitor compliance with abstraction licence conditions	Agency		→		Now regarded as routine work

ACTION PLAN MONITORING REPORT

Issues & Actions	By	Cost	97	98	Progress Year Three
12d. Assess fisheries issues as part of other studies	see Action 9b				
The Britford flow apportioning Initiative					
13a. Provide structural improvements and security measures at Drawing Hatches, Wire Hatches and Sluice House and construct fixed bypass weir	see also Action 13d				This work has been completed
13b. Repair Drawing Hatches	Owners				Work has been completed by Whittle Estate
13c. Monitor the effect of agreed hatch settings from June to November 1994 on the operation and use of the Britford system	Agency		→		Monitoring is taking place via the installed telemetry
13d. Installation of telemetry to allow the remote monitoring and operation of key parts of the system.	Agency	£22k			The initial investigation has looked at costs and possible systems
13e. Review the operation of the Britford system	Agency	£0.5k	→		New rules in use
13f. Recognise and support the conservation value of Petersfinger lakes	Agency				A report was produced in 1994
13g. Publicise Weir, Hatches and Silt policy using Britford as a good cooperative venture	Agency				On-site press conference was held in 1995
13f. Agreement reached to enable the two water meadow tenants to share water; determine water meadow flow needs and check for leaks	Agency Owners EN			•	Water levels and flooding events are still insufficient at present to enable the assessment of the water requirements for the SSSI to be carried out accurately. A report on the work on Britford SSSI water resource use results was inconclusive, and further work is required
Future development will impact upon the water environment					
14a. Seek the inclusion of policies to protect and enhance the water environment in relevant Structure Plans	Agency LPAs		→		Now regarded as routine work
14b. Seek the inclusion of policies to protect and enhance the water environment in relevant District Wide Local Plans	Agency LPAs		→		Now regarded as routine work
14c. Encourage cross-boundary consistency between planning authorities within the catchment	Agency LPAs		→		Now regarded as routine work
14d. A Section 105 survey for all main river floodplains to provide planning authorities with maps outlining indicative 1 in 100 year flood risk areas to assist with development land allocation	Agency		→		Indicative floodplain mapping was completed in April 1997 for all main rivers; more detailed analysis and mapping of the 1 in 100 year flood risk areas will focus on areas that may be the subject of development proposals
Investigation of scope for a balanced development of public access					
15a. Collaborative project to investigate scope for increased access as an appropriate component of balanced river valley use	Agency others	Unknown		•	We have not been able to identify any sources of funding for this initiative. We will continue to investigate policy directives; and will produce a brief summary document. We will support other access initiatives, for example by contributing to the cost of display boards
The potential for buffer zones to improve river corridor habitats and contribute to an improvement in water quality					
16a. Upper Avon, Nadder and Wylde catchments have been identified as a pilot scheme for a Ministry of Agriculture, Fisheries & Food Water Fringe Option	MAFF Owners Agency EN		→		This is still proving to be one of the most successful schemes nationally, and will be reviewed by the Ministry of Agriculture, Fisheries & Food during 1998
16b. Collaborative project to maximise the benefits of the Water Fringe Option by targeted promotion of the scheme and demonstration of techniques	Agency				Leaflets were produced and site demonstrations conducted in 1995
16c. National research project to develop land management techniques including the use of buffer zones. The project is in three phases; phase 1 is complete and phase 2 is currently underway	Agency	£200k		•	
16d. National workshop to provide guidance on buffer zone management	Agency				We have organised and attended a number of workshops

Issues & Actions	By	Cost	97	98	Progress Year Three
Potential sea-level rise and the Impact on rivers as a result of global warming					
17a. Allow for a forecast 5mm per year sea-level rise in all sea defence schemes until the year 2030, and 7.5mm per year thereafter	Agency		→		Now regarded as routine work
17b. Produce detailed flood risk maps	see Action 14d				
Habitat enhancement in the river channel					
18a Collaborative project to promote MAFF Water Fringe schemes	see Issue 16				
NEW 18b. We have recently completed a collaborative habitat restoration scheme with the Wild Trout Society and Salisbury & District Angling Club at West Amesbury	Agency WTS S&DAC	£5k	•		This involved reprofiling 350m of river channel, including narrowing and the introduction of meanders, tree management and fencing, and should benefit a wide variety of river life including fish, birds, mammals, insects and water plants.
NEW 18c. We have identified a number of other sites with the potential for collaborative habitat restoration schemes	Agency Owners	£50k subject to funding			Sections of the Avon at Enford, Woodford, and between Downton and Hale, the Wylve at Hunt Stream and the Nadder at Ugford Hatches have been identified as candidates for work
Impact of swans on the water environment					
19.1. Work with all interest groups to develop and implement strategies to reduce impact	Agency EN MAFF Owners	£2k			A Ministry of Agriculture, Fisheries & Food licence to control fertility was issued in 1997. We are monitoring the impact on macrophytes (see Action 5.2g), and the Ministry will continue monitoring changes in population
Cormorant predation of fish					
19.2a. The Agency will support licensed killing only when serious damage to fisheries by cormorants has been established and alternative non-destructive methods of preventing damage have been tried	see Action 19.2b				
19.2b. The Agency will cooperate with the licensing authority to progress further research into this issue, and will work positively with owners and anglers to establish the full facts in each situation	Agency MAFF Owners		•		The £1M National research study in collaboration with the Ministry of Agriculture, Fisheries & Food and the Department of the Environment identified three sites on the Hampshire Avon for study. Only one has proven feasible for the study, which is due to start November 1997 with a report produced early 1998
Biodiversity targets for the catchment					
20a. Encourage and cooperate with the setting of targets for key wetland habitats and species based on the recommendation of the UK Biodiversity Action Plan	Agency EN HWT RSPB Others	£1k	→		The Stage I report presenting the current state of ecological data on the Avon has been completed. Stage II, to draft biodiversity targets and begin to fill survey gaps, will proceed in 1997-98
20b. Prepare a strategy for native crayfish, one of the species we have a coordinating role for	Agency EN HWT MAFF Others	£5.5k	•		We prepared a strategy document but were unable to get a licence for reintroductions. A third population has now been discovered in the Avon, and we are continuing this work in conjunction with Sparsholt College to include a survey of old sites
20c. Prepare a strategy for otters, one of the species we have a coordinating role for	Agency EN HWT Others	£1.5k for the South Wessex Area	•		The eel contaminants report failed to identify any residual problems for otters. We are seeking expert input to assess current status and limiting factors, prior to the Regional survey of otter populations proposed in 1998-99
20d. Collaborative study of breeding waders	see Actions 10 and 20a				The report of this study was used in Environmentally Sensitive Areas review and for setting targets

Issues & Actions	By	Cost	97	98	Progress Year Three
NEW 20e. Wiltshire Otter and Vole Project to investigate opportunities for habitat improvements on Wylze (initially) for otters, voles and other key species	WWT Agency MAFF landowners	£4k	•		
NEW 20f. Lamprey survey to investigate populations on the Western Avon and effect of dredging	Agency EN	£1.5k	•		
NEW 20g. A number of habitat improvement schemes have been identified and progressed this year	see Actions 18b and 18c				
Need to further identify the archaeological resource within the catchment					
21. Need for a scoping project to investigate opportunities for improving knowledge on archaeological interest, in particular water meadows, within river valleys	Agency LPAs				A pilot project on watermeadows in other catchments in the South Wessex Area will indicate the scope for projects in this catchment
New Action. Reduce the impact of acid rain					
22a. We aim Nationally to reduce the emissions of sulphur dioxide by 75%, from a level of 1,656,000 tonnes in 1993 to 414,000 tonnes by 2005	Agency	Unknown	→		Agency-regulated processes account for an estimated 70% of total UK emissions
22b. We aim Nationally to reduce the emissions of nitrogen oxides by 33%, from a level of 512,000 tonnes in 1995 to 338,000 tonnes in 1998	Agency	Unknown	•	•	Agency-regulated processes account for an estimated 22% of total UK emissions

5. Appendices

5.1. Integrated Pollution Control

We are the statutory authority in England and Wales for regulating the largest and most complex industrial processes which discharge potentially harmful substances to air, water and land. To do this we use a system known as Integrated Pollution Control (IPC).

We are required to ensure that the best available techniques not entailing excessive cost (BATNEEC) are used to prevent release of particular substances into the environment or where not practicable to minimise their release and render them harmless. Where a process is likely to involve releases into more than one medium, we ensure that this principle is used to ensure that the best practicable environmental option (BPEO) is adopted.

Under the Water Industry Act 1991, referrals of special category effluent for discharge to sewer from processes which are not subject to Integrated Pollution Control are managed by the Agency on behalf of the Secretary of State for the Environment.

5.2. Air quality

Air quality is an indicator of environmental quality; poor air quality can damage flora and fauna and buildings, and have significant effects on soils and water. Some pollutants, such as acidic gases, can also cause serious problems for those with asthma, bronchitis and other respiratory diseases.

We need to work closely with others if improvements are to be achieved. This is particularly important with regard to local air quality where we are only one of a number of regulatory bodies, with a role in helping to achieve the Government's air quality strategy.

We have set National targets to reduce emissions of sulphur dioxide and nitrogen oxides from Agency-regulated processes (see Issue 22). These reductions will contribute to reducing impacts at a local level.

5.3. Radioactive substances

We are the principal regulator in England and Wales under the Radioactive Substances Act 1993. This statute is concerned with the storage, use and disposal of radioactive substances, and in particular, the regulation of radioactive waste.

We regulate the accumulation, keeping and use of radioactive materials, and its disposal, including that from licensed nuclear sites. Certificates of registration are issued for keeping and using radioactive materials and certificates of authorisation for the accumulation and disposal of radioactive waste.

5.4. Waste management

We enforce the majority of legislation which governs the management of waste generated from household, commercial or industrial sources, and are also involved in ensuring that controlled wastes are transported in a proper manner by registering all carriers of waste. Wastes which are regarded as particularly hazardous are categorised as *special waste* and become the subject of a strict tracking procedure under the Special Waste Regulations 1996 to ensure that they are disposed of at an appropriate site.

We prevent pollution of the environment, harm to human health or serious detriment to the amenities of the locality from waste management activities. Sites are principally controlled by issuing waste management licences for the storage, treatment, handling and disposal of waste. Each licence contains conditions on the construction, maintenance and operation of sites, and stipulate monitoring requirements where we deem it necessary. The environment is protected by appropriate conditions which are agreed internally and circulated to external bodies as a consultation exercise prior to the issue of a licence. We actively enforce the conditions placed on a licence by regular inspection and monitoring visits to the wide range of sites, and we take action against illegal disposal activities like fly tipping.

The Department of the Environment White Paper *Making Waste Work* sets out the Government's policy framework for the management of waste. It sets out ways in which waste can be managed in a more sustainable way, and sets targets for achieving that aim.

This strategy is based on three key objectives: reducing the amount of waste that society produces, making the best use of the waste produced, and choosing waste management practices which minimise the risks of immediate and future harm to the environment and to human health.

The Producer Responsibility Regulations were introduced in 1997 to place responsibility on some businesses that handle packaging to recover and recycle certain proportions of packaging materials. This initiative will be a key tool for promoting the recovery of value from waste. It is designed to ensure that industry assumes an increased share of the responsibility for the waste arising from the disposal of its products. The target is to recover 50-65% of packaging waste by 2001.

We will play a lead role in implementing, monitoring and enforcing this legislation. Businesses will have to register with us and provide data by August 1997, start to meet interim recovery and recycling targets in 1998-99, meet an interim recycling target by 2000 and full targets by 2001. All businesses involved in the packaging chain will share the responsibility if they:

- have a turnover of more than £5 million and handle more than 50 tonnes of packaging each year during 1997-99
- have a turnover of more than £1 million and handle over 50 tonnes of packaging materials each year from the year 2000

5.5. River Quality Objectives

We manage water quality by setting River Quality Objectives which are intended to protect current water quality and future use. We use them as a basis for setting consents for new discharges and planning future water quality improvements. Our River Quality Objectives use a classification scheme known as River Ecosystem (RE) which was introduced in 1994.

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

Where we are unable to identify solutions or resources to resolve current water quality problems, we can also set a visionary or Long Term River Quality Objectives; we will use this visionary target as a basis for setting consents for new discharges. This will ensure that future developments will not hinder our efforts to improve water quality.

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

5.6. Glossary

AMP2	Second Asset Management Plan
BWHW	Boumemouth and West Hampshire Water Company
DoE	Department of the Environment (now Department of the Environment, Transport & the Regions)
EC	European Community
EN	English Nature
EU	European Union
GCT	Game Conservancy Trust
HMSO	Her Majesty's Stationery Office
HSE	Health & Safety Executive
HWT	Hampshire Wildlife Trust
IDB	Internal Drainage Board
IFE	Institute of Freshwater Ecology
IFIM	Instream Flow Incremental Methodology
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
MoD	Ministry of Defence
OFWAT	Office of Water Services
PHABSIM	Physical Habitat Simulation
RE	River Ecosystem
RQO	River Quality Objective
RSPB	Royal Society for the Protection of Birds
S&DAC	Salisbury & District Angling Club
SSSI	Site of Special Scientific Interest
WSA	Wessex Salmon Association
WTS	Wild Trout Society
WWS	Wessex Water Services Ltd
WWT	Wiltshire Wildlife Trust

5.7. References

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