

EA- SOUTH WEST LEAPS - Box 8

Photo
Maps

local environment agency plan

DORSET STOUR

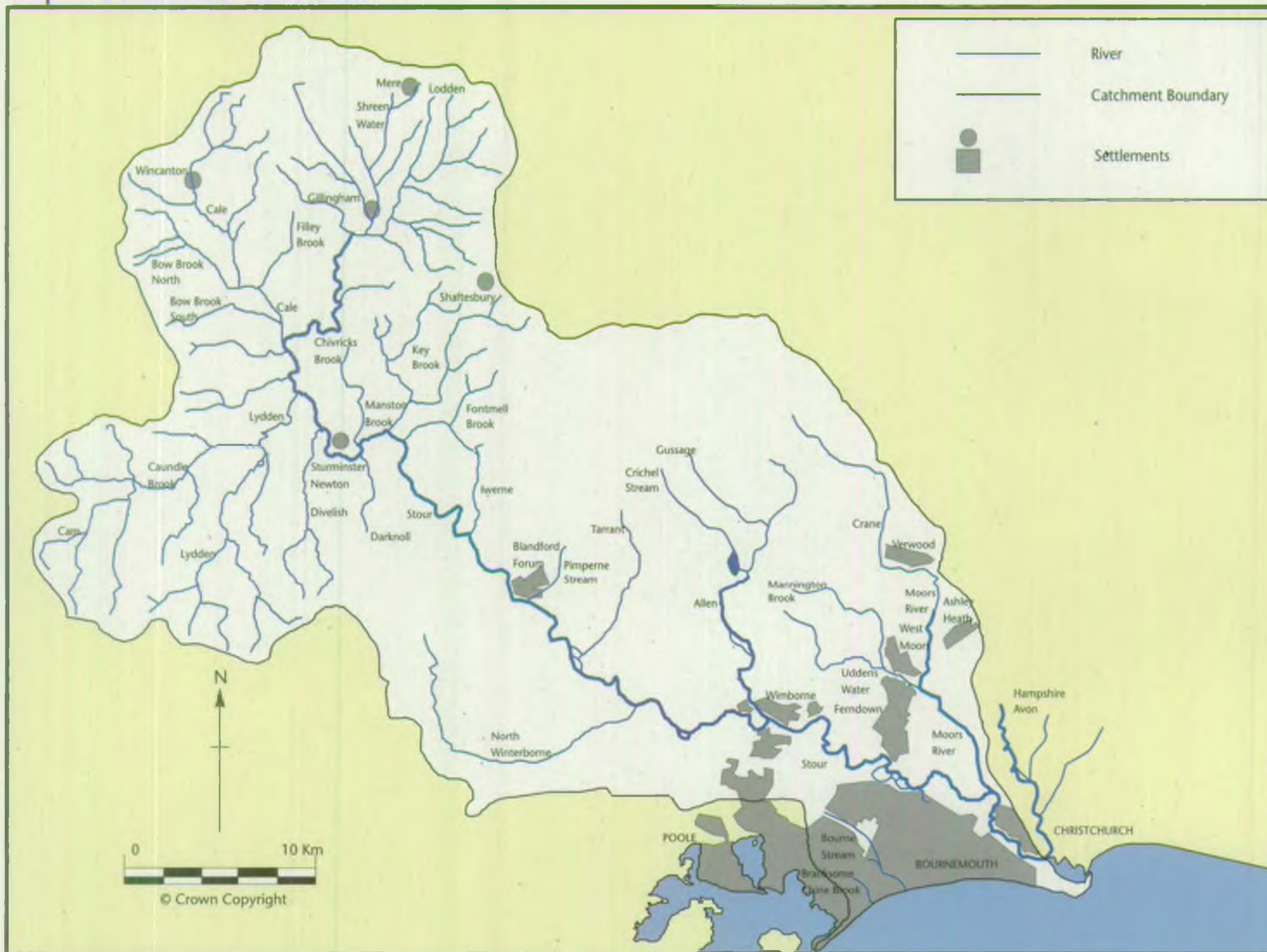
ACTION PLAN

JANUARY 1998



ENVIRONMENT
AGENCY

Map 1 : Dorset Stour Catchment



map 1

fold out for Map 1
Dorset Stour Catchment

map 2

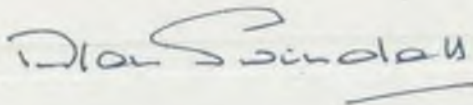
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1996 Compliance with River Quality Objectives (River Ecosystem Classification)

Foreword

This Plan represents a significant step forward in environmental thinking. It has been clear for many years that the problems of land, air and water, particularly in the realm of pollution control, cannot be adequately addressed individually. They are interdependent, each affecting the others. The Government's answer was to create the Environment Agency with the umbrella responsibility for all three. The role and duties of the Agency are set out in this document.

This holistic approach is now reflected in this Plan. It is a logical development of the Catchment Management Plans prepared by the old National Rivers Authority, now subsumed into the Agency. It sets out the environmental problems of the area in a way which has not been done before, and suggests the most important issues which should now be addressed. It is, I believe, vital reading for everyone concerned with the future of this part of Wessex.

The Stour is a major river influencing a large part of Dorset and small parts of Somerset and Wiltshire. It impacts on the lives of many people with different interests and priorities. The Environment Agency wants to be sure that these are recognised in its own future programme of action.



Alan Swindall
Chairman, South Wessex Area Environment Group of the
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Published January 1998

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Our Vision

The Dorset Stour catchment is a system of great diversity that is significantly influenced by land use along its length, including:

- the Poole, Bournemouth and Christchurch conurbation in the lower catchment
- mixed farming in the middle catchment
- intensive dairy farming in the upper catchment

The river and its tributaries make an important contribution to the rural economy through agriculture and an equally important contribution to the urban economy through public water supply, effluent disposal, waste disposal, recreation and tourism.

Our vision of the Dorset Stour is of a healthy and diverse catchment, managed in a sustainable way in which human economic and social needs are met in ways which will maintain high environmental quality standards.

We cannot realise this vision on our own and will seek to work in partnership with local authorities, industry, farmers, environmental groups and other interested organisations to turn this vision into reality.

We look forward to a future where there is:

- development of a sustainable agricultural, aquacultural and forestry system which reduces diffuse pollution and improves the physical habitat of the river system and wetlands for wildlife
- maintenance and, where appropriate, enhancement of biodiversity
- significant reduction in waste and improved standards of disposal and treatment
- achievement of environmentally sustainable use of water resources
- continuing improvement to existing discharges to meet the most appropriate standards
- minimal risk to people and property from flooding
- full development of potential for sustainable salmonid and freshwater fisheries
- increasing enjoyment and appreciation of the water environment
- improvement in the quality of air



Howard Davidson
Area Manager, South Wessex Area of the Environment Agency

1. Introduction

1.1

The Environment Agency

The Environment Agency was formed to 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 achieve this by:

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

We are working to ensure that:

- our land is conserved and protected from flooding and contamination
- our water resources are properly managed to provide water for all reasonable needs without harming the environment
- our diverse and invaluable fisheries and other wildlife are protected and their habitats increased
- our waste is managed safely, be it nuclear or domestic
- our air is of a quality that is not affected by discharges from major industries
- our national heritage, both natural and man-made, is not threatened by pollution; so that:
- our environment can be enjoyed by everyone

1.2

Sustainable development

In 1987, the World Commission on Environment and Development (the Brundtland Commission) defined sustainable development as that which meets the needs of the present without compromising the ability of future generations to meet their own needs.

One of the primary reasons for setting up the Environment Agency was to provide a means of helping the Government deliver its sustainable development strategy; the key elements are that the Agency should:

- take a holistic approach to the protection and enhancement of the environment
- take a long-term perspective

- maintain biodiversity by exercising its statutory obligations with respect to conservation
- discharge its regulatory functions in partnerships with business in ways which maximise the scope for cost effective investment in improved technologies and management techniques
- provide high quality information and advice on the environment

Sustainable development brings together four sets of values: environmental protection, providing for the future, quality of life, and fairness, to create a new policy which integrates environmental, developmental, social and economic concerns.

1.3

Our umbrella duties

There are a number of umbrella duties which we carry out for all our functions:

- Rural Areas - when considering any proposal, we must have regard to any effect which the proposals would have on the economic and social well-being of local communities in rural areas. Some of our activities, such as meeting statutory objectives, emergency actions and the taking of legal actions, are not subject to this appraisal
- Costs and Benefits - we are required to take into account the likely costs and benefits when deciding whether to exercise our powers. Costs include both financial costs and costs to the environment; benefits include those which communities will enjoy, both now and in the future
- Conservation - we must have regard to conservation in our pollution control functions, and we have a duty to further conservation in all our other functions. We also have a duty generally to promote the conservation of flora and fauna dependent on the aquatic environment

1.4

This Local Environment Agency Plan

This Local Environment Agency Plan slots into a sequence of Catchment Management Plans which were being prepared by the National Rivers Authority to cover all river catchments in England and Wales. We will use these Plans to cover the same topics as Catchment Management Plans and other topics to cover the full range of our responsibilities.

A holistic approach to environmental management is required to plan for sustainability and improvement. These Plans allow the full range of management issues to be identified and considered within a geographical area which is both relevant and meaningful. They are strategic in nature, since individual catchments cover large areas of land, often straddling local authority boundaries.

Economic and political constraints will influence what we are able to do. For example the funds that the water service companies and other industries invest in pollution control will make a difference to the extent of water quality improvements that we are able to achieve.

1.4.1 The Area Environment Group

During the summer of 1996, we set up an Area Environment Group for the South Wessex Area. We regard this Group as fundamental in assisting us in building relationships with local communities. The Group has nineteen members who have a broad experience and interest in environmental matters. Their role is an advisory one, and they have been consulted during the production of this Plan.

Alan Swindall (Chairman)
 Brian Chandler (Wessex Regional Flood Defence Committee)
 Charles Tarver (Wessex Regional Fisheries Advisory Committee)
 Susan Caito (Regional Environmental Protection Advisory Committee)

Roger Harrington (water resources)	Peter Bialek (waste management)
Michael Webster (industry)	Andy Stillman (education)
Timothy Palmer (agriculture)	Laura Hirst (conservation)
John Davies (recreation)	Michael Park (fisheries)
Sue Harmon-Smith (tourism)	Annette Brooke (local authority)
Arthur Bromwich (local authority)	Sheila Poupard (local authority)
Barbara Smith (local authority)	John Day (Royal Society for the Protection of Birds)
Tim Moore (landowner)	

1.4.2 The Consultation Report

We published a Consultation Report for the Dorset Stour in January 1997 which gave an opportunity for the public to comment on environmental problems or our work. It described the environmental resources of the area, explained how these resources are affected by human uses or pressures, and outlined issues where we or others need to take action to address problems in the environment.

1.4.3 The Action Plan

We have collated responses to the Consultation Report (see section 4) and produced this Action Plan. Each year we will review the progress that has been made with the Actions identified in this Plan and publish a brief review. Within five years, we will carry out a major review of the progress we have made.

1.5

Working with others

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 the Stour catchment. This section outlines some of our work with other organisations, and highlights where we need to further develop these partnerships.

1.5.1 Development Plans

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

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

1.5.2 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. They are promoted by coastal defence authorities such as the Agency, and District and Borough Councils, and used in local authority development plans and coastal zone management. The objectives of these plans are to improve our understanding of coastal processes, develop sustainable coastal defence policies, and set out arrangements for continued consultation with interested parties.

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

1.5.3 Coastal Zone Management Plans

Above the low water mark, the Town & Country Planning system provides the means of regulating development; below this, regulation is controlled by a number of Government departments. The Government's view is that voluntary cooperation and self regulation, with local authorities taking the lead role, is the best way to control activity and development.

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

The Forum has been successful in securing European funding from the EU Life Demonstration Programme on Coastal Zone Management; the total project value is £330k, half of which is being met from European funds. The project is being coordinated by Dorset County Council with support from other partners including ourselves, English Nature, Wessex Water Services, British Petroleum, Amoco, Poole Borough Council, Bournemouth Borough Council, West Dorset District Council and Dorset Wildlife Trust. It aims to produce a Coastal Strategy for Dorset and to set an example at the European level on how to approach coastal zone management.

1.5.4 Local Agenda 21

Local authorities are assisting their communities in developing local strategies and action plans for sustainable development. The approach adopted varies, but many Local Agenda 21 groups set up working groups to look at specific issues.

We organised a conference in October 1997 to see how we can most effectively assist communities in developing their Local Agenda 21 plans; council officers, councillors and Local Agenda 21 representatives were invited. We have also established our own Coordinators to provide single points of contact on Local Agenda 21 issues.

1.5.5 Education

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

- educate young people to help them to make informed judgements about future environmental decisions
- educate industry through consultation, collaborative activities and targeted campaigns to promote a culture of prevention rather than cure
- raise public awareness of environmental issues to engender in society a common ownership of the environment and its challenges

We provide a wide range of information to all sectors of society, and in addition give many talks and presentations. This Plan is a practical example of the material we publish which can assist in raising public awareness and understanding of environmental issues.

2. Description of the Plan area

The Stour rises on the Greensand at St Peters Pump in Stourhead Gardens and flows 96km to the sea at Christchurch; the fall over its entire course is approximately 230m. The catchment lies predominantly within the county of Dorset, with smaller areas in Somerset and Wiltshire. It covers a land area of 1,300km² with a population of about 394,000.

The Stour catchment covers parts of many local planning authorities. The upper reaches lie within Salisbury, South Somerset, West Dorset and North Dorset District Councils, and the lower reaches include East Dorset and Purbeck District Councils and Poole, Bournemouth and Christchurch Borough Councils.

In 1995, 33% of the river length in the Stour catchment was of good or very good chemical quality, 56% was fairly good while 11% was either fair or poor. In biological terms 83.3% of the river was of good or very good quality while the remaining 17% was fairly good. Between 1990 and 1995 there was an overall improvement in chemical quality over 12% of river length while biological quality improved in 17% of the river. Although water quality has recently improved there are parts of the catchment where it is not good enough. These shortfalls in quality are described in the Consultation Report.

Above Sturminster Newton, the catchment comprises a dense network of tributaries which drain predominantly clay soils. This is a domestic farmed landscape of pastures, scattered villages, hedgerows and small woodlands forming an irregular patchwork. The nature of the geology makes it particularly responsive to rainfall.

Below Sturminster Newton, the Stour flows towards Blandford Forum through a narrower valley with chalk hills on either side. The land use is mainly arable on the gentle slopes towards the edge of the floodplain and pasture on the flat valley floor. Settlements and roads either hug the foot of the chalk escarpment or are concentrated on the valley floor, and there are fewer tributaries.

At Wimborne Minster, the Stour crosses onto the tertiary sand and gravel deposits and flows towards Bournemouth across a landscape of typically large open fields, predominantly pasture with arable and settlements along the outer margins of the valley floor.

The Allen flows over chalk for almost all of its length until it joins the Stour at Wimborne. Its valley landscape is much more intimate than the surrounding countryside, with former watermeadows on either side of the river contrasting with adjacent arable fields. Copses and riverside trees are frequent; development is rare, though historic bridges are a feature.

The Crane rises on the chalk, but is known as the Moors River after it enters the tertiary deposits; it is joined by the Uddens Water at Ferndown, and joins the Stour at Hurn. It flows through a landscape of low rolling hills with an irregular and enclosed patchwork of pasture, woodland including coniferous plantations, hedgerows and heathland on acid soils.

In Bournemouth, the watercourses are an important part of the townscape, as narrow, wooded corridors. The coastal fringe is heavily populated with the main centres of Bournemouth, Poole and Christchurch. This coastal area, with its bathing beaches and potential for recreational activities, is popular with tourists during the summer season.

Towards the coast, the floodplain widens to form extensive level pastures, marsh and mudflats, meeting the Hampshire Avon to form Christchurch Harbour. This consists mainly of intertidal fine muddy sand with small areas of salt marsh that have a particularly rich flora, and it is very popular for recreation.

3. Activity tables

The following tables outline the Actions needed to address the issues we identified in the Consultation Report and during the consultation process. The tables show the following information:

- organisations which will implement the proposed activity (see Glossary for acronyms and abbreviations)
- a timetable for each activity
- an estimate of the cost to us, where available
- the financial years (April-March) in which the work will be done

The following points should also be noted:

- our everyday work commits substantial resources to monitoring and managing the environment
- some actions will require feasibility studies and cost-benefit appraisals prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be justified
- both ourselves and other participating organisations have limited resources and powers; some work may take longer than indicated owing to funding availability, Government policy, or more urgent priorities
- should more issues become apparent during the life of this Plan, then further Actions will be added at successive Annual Reviews

3.1

The setting and maintenance of water quality targets

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

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

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 Objective; we 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.

In the Consultation Report we proposed River Quality Objectives for the whole catchment. These have been confirmed following the consultation process, and Map 2 shows these targets and the compliance with them.

The water quality assessment in the Consultation Report was based on three years data between 1993-95. We have now updated these assessments for the period 1994-96 and the number of significant failures has dropped from 6 in 1995 to 5 in 1996; the number of marginal failures has dropped from 14 to 11 for the same period. However several new river reaches are now non-compliant. Following these failures we propose to carry out investigation work on these river reaches.

The presence of nutrients (see Issue 3.2) combined with the sluggish summer flows in the Stour create the ideal conditions for summer algal blooms; these can exert high Biochemical Oxygen Demand during laboratory analysis but this does not necessarily represent the Demand exerted in rivers. If this impact is not excluded from compliance assessment, spurious results may be reported and there is a risk that investment to improve discharges will not be targeted efficiently. In 1995 and 1996, chlorophyll results have allowed us to determine that certain high Biochemical Oxygen Demand values were a result of algal blooms, and these data have been set aside.

Algal blooms cause diurnal fluctuations in dissolved oxygen concentration in the river with significant reductions at night. Under certain circumstances, these low oxygen levels can pose a risk to fish populations.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
1a Investigate cause of River Quality Objective failures on the following reaches. <i>In 1996 there were 5 significant failures (Stour Durweston-Tarrant, Uddens Ameysford-Crane, Iwerne upstream of Ranston, Lydden Cannings Court-Lydden House, Lydden Hazlebury Bryan-Lydden House), and 11 marginal failures of River Quality Objectives (Stour Shreen-Gillingham, Stour Tarrant-North Winterborne, Stour North Winterborne-Allen, Stour Allen-A348 road, Allen Gussage-Hinton Parva East, Allen Hinton Parva-Stour, North Winterborne Winterborne Kingston-Stour, Divilish Kitford-Stour, Lydden Caundle-Stour, Caundle Bishops Caundle-Lydden, Cale Wincanton-Bow Brook). The investigation of EC Directive failures and significant River Quality Objective failure is afforded a higher priority than marginal failures</i>	Agency	20	●	●			
1b Investigate causes of Long Term River Quality Objective failures in the lower Stour, Allen, Divilish, Manston and Mannington. <i>These investigations will determine the action required to meet Long Term River Quality Objectives</i>	Agency	30		●	●	●	●
1c Undertake chlorophyll monitoring at 25 additional sites in the catchment. <i>This will provide additional information on the duration of algal blooms and will assist in determining the reasons for some River Quality Objective failures</i>	Agency	10	●	●	●	●	●

3.2

Impact of agriculture on water quality

Over the last ten years, there have been significant improvements by farmers in farm waste storage facilities and disposal methods which have resulted in significant reductions in the numbers of point source pollution incidents attributed to dairy farms in the catchment. However, stretches of the rivers which drain the Blackmore Vale, a low lying area with heavy clay soil that is intensively and very productively dairy farmed, are still susceptible to agricultural runoff from the land when it rains.

Our work in this area will target diffuse pollution problems where agricultural runoff is contributing to River Quality Objective failures and nutrient enrichment. We will advise farmers to ensure that the risk of pollution from all agricultural activities is minimised, and we encourage the active use of Farm Waste Management Plans. We are also investigating novel methods of dealing with diffuse pollution including farm waste brokerages.

Our Landcare project, which is currently running on the upper Hampshire Avon, should identify methods for reducing diffuse agricultural inputs which can subsequently be applied in the Stour catchment.

In recent years, Wessex Water Services have reported rising levels of nitrates at their Black Lane borehole near Blandford which have occasionally exceeded the EC Groundwater Directive standards. Hall & Woodhouse have also reported rising levels of nitrates from their Blandford borehole. We are working with local farmers to ensure that the risk of pollution to surface and groundwater by the application of fertilisers is minimised.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
2a Farm campaigns and the provision of pollution prevention advice to ensure that point source pollution from all farm activities is minimised. <i>Some River Quality Objective failures in the catchment are associated with diffuse inputs from the spreading of farm wastes</i>	Agency	Unknown	→				
2b Facilitate the use of Fertiliser Management Plans by farms surrounding the Wessex Water Services Supply Source at Black Lane, Blandford. <i>Rising levels of nitrates at Black Lane and the Hall & Woodhouse borehole have occasionally exceeded the EC Groundwater Directive standards</i>	Agency Farmers WWS	20	●	●			
2c Dealing with Diffuse Pollution Phase 1. Feasibility study to examine the possibility of reducing the impact of landspreading on watercourses and groundwater through farm waste brokerage. <i>A collaborative project involving farmers, Agricultural Development and Advisory Service, agricultural contractors, Wessex Water Services, Bournemouth & West Hampshire Water Company, Ministry of Agriculture, Fisheries & Food, Farming & Wildlife Advisory Group is envisaged. It would involve the export of animal manures and slurries from dairy and pig farms in clay areas to arable farms on chalk downland where it has considerable fertiliser value</i>	Agency	20	●				
2d Dealing with Diffuse Pollution Phase 2. Depending on the outcome of Phase 1, this may involve implementing farm waste brokerage in pilot areas; part of the Stour catchment may be a pilot catchment		Unknown		●	●		

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
2e Collect data to support the case for designation as a Nitrate Vulnerable Zone under the EC Nitrates Directive. <i>Although the Stour currently complies with the Directive, there is an increasing risk of non-compliance. This work may involve Bournemouth & West Hampshire Water and the Ministry of Agriculture, Fisheries & Food</i>	Agency	15 pa	●	●	●	●	●
2f Undertake chlorophyll monitoring at 25 additional sites in the catchment	see Action 1c						
2g Participate in and implement actions from Blackmore Vale Restoration Project	see Action 14c						

3.3 Impact of sewage and sewerage on water quality

The EC Bathing Waters Directive concerning the quality of bathing water protects the environment and public health of bathing waters by reducing pollution entering identified bathing areas. During the 1997 bathing season, exceedences of this Directive have been recorded at bathing waters close to the entrance of Christchurch Harbour. We have negotiated with Wessex Water Services to secure improvements to Holdenhurst and Christchurch sewage treatment works. The improvements required are likely to be a combination of reductions in the frequency of storm discharges and ultra-violet disinfection of treated sewage effluents.

Following an EC Bathing Water Directive failure at Boscombe Pier in 1993, Wessex Water Services are proposing to carry out improvements to the Boscombe combined sewer overflow which will involve interception of flows to the pumping station and redirection to the coastal interceptor sewer, substantially reducing discharges from the combined sewer overflow.

Discharges from Kinson, Palmersford and Holdenhurst sewage treatment works may be contributing to non-compliance with Long Term River Quality Objectives on the lower Stour (see Action 1b), and contributing to the nutrient enrichment in the Stour and Christchurch Harbour (see Action 3e).

At Iwerne Minster, Wessex Water Services have taken short-term measures to uprate the works and reduce the frequency of storm water discharges. A long-term solution involving uprating the whole plant is being costed.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
3a Negotiate improvements in Wessex Water Services discharges from Holdenhurst and Christchurch sewage treatment works	Agency WWS OFWAT	Unknown	●				
3b Carry out agreed programme of improvements at Holdenhurst and Christchurch sewage treatment works	WWS	Unknown	●	●	●	●	●
3c Carry out improvements to Boscombe Pier combined sewer overflow	WWS		●				
3d Uprating of Iwerne Minster sewage treatment works	WWS		●	●	●		

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
3e Data collection to support the case for designation of the lower Stour and Christchurch Harbour under the EC Urban Waste Water Treatment Directive. <i>This will include using water quality modelling techniques to assess the relative importance of the various sources of nutrients (see also Action 2e)</i>	Agency	10 pa		●	●	●	●
3f We will provide information regarding the installation of first time sewerage as required	Agency			→			
3g Actions on Bourne Stream	see Action 4a						

3.4 Impact of urban runoff on rivers

Water quality in the Bourne Stream, Moors River, Ameysford Stream, Crane and Uddens Water are affected by urban runoff and sporadic pollution incidents from local industrial estates and urban areas.

In the Bourne Stream, we are concerned about the elevated levels of bacteria which may indicate sewage contamination, although surface water can have naturally high bacterial levels. The Bourne flows into the sea at Bournemouth Pier and may affect bathing water quality at this site. We are proposing to identify the sources of diffuse pollution in the Bourne catchment and the opportunities to reduce this by the installation of pollution prevention systems.

The Moors River is a Site of Special Scientific Interest, and there is a proposal to extend this designation to include parts of the Crane. We will survey industrial estates and farms in the Moors catchment to assess and minimise pollution risks.

Runoff from extensive areas of roads and hardstanding can also lead to problems with spate flows in rivers. In dealing with planning matters which involve surface water runoff, we will encourage developers to adopt best practice so that the disposal of surface water minimises the risk of pollution and spate flows in rivers. We will encourage the use of porous pavements so that the volumes of runoff are reduced and clean surface water soaks into the ground to assist the recharge of aquifers.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
4a Proposed scoping study to identify sources of diffuse pollution in the Bourne Stream and opportunities to reduce this by the installation of pollution prevention systems. <i>We would aim to reduce the potential impact on Bournemouth Pier Bathing Beach from the Bourne Stream. Possible partners might include Bournemouth and Poole Borough Councils and Wessex Water Services</i>	Agency LPAs	10 subject to funding		●			
4b Phase 2 would be the installation of pollution prevention systems and assessment of benefits	LPAs Agency	Unknown					
4c Consider setting a River Quality Objective for the Bourne Stream	Agency	1				●	

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
4d Survey of the Moors River to target farm drainage and industrial estate problems and reduce the risk of pollution incidents. <i>This survey will initially target the Woolsbridge Industrial Estate area</i>	Agency	10	●	●	●		
4e Ensure that development in the catchment incorporates appropriate pollution prevention and attenuation measures. <i>In addition to ensuring that facilities are provided, we will seek ongoing maintenance agreements so that they continue to operate as designed</i>	Agency Developers LPAs	Unknown	→				
4f Develop plans for management in key river corridors through urban areas via planning process. <i>Wincanton and Gillingham are key sites</i>	Agency	Unknown			●		

3.5 Contaminated land

The Environment Act 1995 contains new provisions for dealing with contaminated land which will be implemented by spring 1998; local authorities will be the key regulators and we will act as a consultee and advisor, and take responsibility for certain special sites.

Local authorities will be required to carry out a survey to identify contaminated land in their areas, and when these have been carried out we have a duty to publish a report on the state of contaminated land periodically.

The precise nature and extent of contaminated land within this area is not known as it is often only discovered when sites are redeveloped or when pollution actually occurs.

The Ashington Stream, a tributary of the Stour, is affected by volatile organic solvents from the nearby Cogdean Elms industrial site, which has a long history of association with solvent storage and supply. Solvents spilled on the ground since 1950 have contaminated a minor aquifer and discharge to the stream via local springs. This has resulted in Environmental Quality Standards being exceeded and the solvents are detectable for 2km downstream. We are investigating the extent of the contamination with a view to determining the appropriate method of treating the contamination.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
5a Identify contaminated land sites in the catchment. <i>Nationally we will identify the extent of contaminated land in England and Wales and publish a State of Contaminated Land report by 2000</i>	LPAs Agency	Unknown		●	●	●	
5b Cogdean Elms Phase 1. Further site investigation to assess the extent of contamination and to determine the appropriate treatment method. <i>Funded by the Department of the Environment, Transport and the Regions</i>	Agency	30	●				
5c Cogdean Elms Phase 2. Carry out appropriate treatment to remediate the contamination. <i>Subject to funding</i>	Agency	approx 200		●	●	●	

3.6

Developing strategies for sustainable waste management

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

Waste minimisation is the first priority for more sustainable waste management; this includes reducing the amount of waste produced that would otherwise need to be processed or disposed, and reducing the degree of hazard represented by such wastes. We are assisting local industries in the development of waste minimisation initiatives.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
6a Promote and support the work of the South Wessex Waste Minimisation Group, including the following initiatives. <i>Involves local industry, local authorities, environmental trusts</i>	Agency	5 pa	●	●	●	●	●
6b Publication of a <i>Don't Waste Away Profits</i> Leaflet	South Wessex Waste Minimisation Group Agency	1	●				
6c Set up a Waste Exchange Scheme	Canford Environmental Trust						
6d Publication of a Regional Recycling Directory. This will be updated annually	Agency	3	●				
6e Publish a Waste Minimisation Success Story booklet. <i>Describing the development of the South Wessex Waste Minimisation Group</i>	Agency	Unknown	●				

3.7

Maintaining our rivers and flood defences

We carry out maintenance work to ensure the efficient working of the natural and artificial drainage system, and to ensure that flood alleviation schemes provide protection up to their design standard.

In the Stour catchment, 70km of river does not meet its target Standard of Service based on the use and associated value of the adjacent land; the completion of many urban schemes in recent years has resulted in additional work associated with the maintenance of mechanical and electrical systems, and much of the extra maintenance effort is required on river reaches between these schemes.

Higher standards of maintenance are proposed to meet the target Standard of Service and for the urban flood alleviation schemes. We need to review whether the historical maintenance that we have carried out, for example weed cutting to maintain agricultural land drainage schemes, is justifiable or whether this maintenance effort should be redirected to urban areas.

We must take account of our conservation duty when carrying out maintenance

work; this work provides enhancement opportunities for conservation and fisheries. Where maintenance work is being carried out on main rivers, we will also control any invasive plant species where appropriate.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
7a Revise our programme of works to favour reaches where we are currently providing service below the target Standard of Service	Agency landowner	Unknown	→				
7b Carry out further surveys of assets. <i>This will cost about £30k per year in the South Wessex Area</i>	Agency	Unknown	→				
7c Assess priorities in light of asset survey	Agency	Unknown		●			
7d Carry out necessary refurbishment and replacement works. <i>This will cost about £1M per year in the South Wessex Area</i>	Agency	Unknown	→				
7e Make initial enquiries to local authorities about dealing with surface water flooding behind our Flood Alleviation Schemes. <i>Local authorities would have to determine, fund and carry out such works.</i>	Agency	Unknown	●	●			
7f Prepare and implement a review of weed cutting on the Moors River	Agency EN	1	●	●			
7g Update Moors River Operational & Maintenance Plan to incorporate our work on the Uddens	Agency EN	2	●	●			
7h Prepare conservation strategy and consenting protocol for Moors River to include the Crane-Moors River proposed Site of Special Scientific Interest extension	Agency EN	2		●	●		
7i Review routine maintenance and identify opportunities for enhancement	Agency	1	●				
7j Prepare Operational & Maintenance Plan for Piddles Wood	Agency	1	●				
7k Produce a Water Level Management Plan for the Moors River. <i>English Nature and riparian landowners will be involved</i>	Agency	5	●	●			

3.8

The provision of flood warning and emergency response

Absolute flood protection is not possible; because of this we need to warn people when there is a risk of flooding. From 1 September 1996, 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 will be issued for the area affected. These warnings are issued to the Police, local authorities, media and in places to those directly at risk. Detailed arrangements are documented in the *Dorset Floodwarning Dissemination Plan* which can be viewed at our offices.

Flood warning for the Stour is based on the gauging station at Colesbrook, a level recorder on the Lodden, and principally the gauging station at Hammoon. These are supplemented by rain gauges, gaugeboard readings and the gauging station

at Throop. Flooding in the tidal stretch of the river at Christchurch is extremely difficult to predict.

A flood prediction model of the Stour is being developed which will predict flood levels at Colesbrook and Hammoon from rainfall. This will assist in providing earlier flood warnings and faster operational response than is currently available by monitoring actual conditions at these locations.

Over the next 5 years, we will be improving the flood warning service so that more information reaches those who need it.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
8a Construct new level monitoring station at Iford Bridge	Agency	15	●				
8b Develop new warning criteria for tidal reaches	Agency	15	●	●			

3.9 Potential effects of climate change on the environment

A Review of the Potential Effects of Climate Change in the United Kingdom has been published by the UK Climate Change Impact Review Group for the Department of the Environment in July 1996.

The Agency has recently published *An Environmental Strategy for the Millennium and Beyond*, which states that addressing the causes and effects of climate change is one of our principal and immediate environmental concerns. Key areas of activity include:

- helping to ensure that the Government's greenhouse gases and emissions targets are met
- investing in research to predict the likely effects of climate change on the environment and how to manage them

This work will take place at a National level, and we will incorporate catchment-specific Actions into Annual Reviews of this Action Plan when they arise.

3.10 Impact of public water supply abstractions on the Allen

The Allen has been identified as one of the top 20 low flow sites in England and Wales requiring attention as a consequence of groundwater abstraction, principally from the Bournemouth & West Hampshire Water borehole at Stanbridge.

Surveys in recent years have indicated:

- the growth of water crowfoot, often regarded as an indicator of the perceived health of chalk rivers, is erratic and in some years very poor
- a collapse of the important breeding populations of snipe and redshank
- a reduction of the suitable salmon spawning and nursery habitat, and probably also the magnitude and the onset of the peak flows that attract them to the river
- sea trout are now rarely seen on the river

The impact of groundwater abstraction on brown trout angling quality and the fisheries of the Allen was assessed during the period 1991 to 1993. Available habitat and spawning habitat for trout and salmon parr were evaluated, and options which gave the greatest improvements in April flows and spawning conditions, and maintained summer angling conditions were considered to be preferable.

In 1993, the National Rivers Authority proposed an Action Plan which identified the need for a reduction of 50% in the Bournemouth & West Hampshire Water licence at Stanbridge by 1999, in association with the setting of revised flow targets for the management of streamflow support from existing boreholes.

Progress with this plan has been mixed and much work remains to be done in the modelling of stream support rules to fit streamflow targets. This cannot be concluded until a firm agreement is reached with Bournemouth & West Hampshire Water over the modifications to its Stanbridge abstraction licence which in turn have a dependency on the flexibility that we might allow in increasing authorised abstractions at their source at Longham to make good any resulting deficits to public water supply.

The need for this agreement has been acknowledged by Bournemouth & West Hampshire Water. What is not in place at present is a positive undertaking to transfer some of its dependency on the Stanbridge source to the Longham river intake and register the necessary costs of this against possible allowances for the water charge increases in the 5 year period following 1998 by OFWAT, the water industry regulator. They have nevertheless volunteered to reduce their abstractions from Stanbridge following the completion of a new water treatment works at Longham, while a formal licence variation is under consideration.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
10a Produce a business case for the downward variation of the Stanbridge borehole licence by 50% of its current value, within the timetable for the OFWAT Periodic Review and incorporating the benefit values now established	Agency	2	●				
10b Incorporate in our Water Resources Development Strategy review a downward marking of the yield of Stanbridge borehole in order to make evident the future change in balances of Bournemouth & West Hampshire Water resources	Agency	Unknown			●		
10c Encourage Bournemouth & West Hampshire Water to make a greater impact with its interim voluntary reductions (currently at 25% but still highly variable). <i>Good progress has been made but high peaks in April 1997 suggest that operators may not be working to rigorous objectives</i>	Agency	Unknown	●				
10d Conduct bi-annual surveys of flow accretion in Gussage and investigate bed-lining maintenance. <i>To maintain the efficiency of stream augmentation</i>	Agency	0.5 pa		●		●	
10e General review of existing stream augmentation control rules to maximise potential benefits. <i>To be initiated from point of assured agreement on the date of the statutory change to the Stanbridge licence</i>	Agency	25					●

3.11 Potential impact of public water supply abstractions at Longham

Permanent reductions in abstraction from the Allen will be dependent on the availability of water at Longham. Bournemouth & West Hampshire Water already have a licensed river abstraction at Longham which currently includes no prescribed flow condition to safeguard downstream users of the river.

While we are committed to the principle of abstractions as near as possible to the mouths of rivers, there is still a need to ensure that such abstractions do not have adverse environmental impacts.

Insufficient flows downstream of Longham may result in a deterioration in water quality associated with the lack of available dilution water to reduce the impact of treated sewage effluent discharges from Kinson, Palmersford and Holdenhurst sewage treatment works.

A prescribed flow will be set for the abstraction at Longham, linked to flows at our Throop gauging station, and the flow condition will ensure that there are sufficient residual flows in the Stour downstream of Longham to provide adequate dilution of treated sewage effluents discharged to the river.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
11a Investigate the potential for changes to the Bournemouth & West Hampshire Water abstraction from the Stour at Longham to make good the resources lost at Stanbridge. <i>This investigation will consider potential impacts on water quality, fisheries and conservation</i>	Agency	50+			●	●	
11b Investigate other options for Bournemouth & West Hampshire Water to compensate for the loss of authorised quantities at Stanbridge in combination with embryonic Longham storage reservoirs or any other conjunctive use measures or demand management options	Agency	5			●		
11c Publish a revised Water Resources Development Strategy with reference to the implications of changes at Longham and for use as the basis of a development plan to be agreed with Bournemouth & West Hampshire Water	Agency	Unknown				●	

3.12 Impact of public water supply abstractions on the Tarrant

The Tarrant is a typical chalk winterbourne and, during the summer months, some river reaches have historically dried up. There is considerable local concern about the possible adverse effect that two public water supply abstractions operated by Wessex Water Services, one at Stubhampton in the headwaters of the Tarrant and one at Shapwick in the valley of the Stour, may have on flows in the Tarrant. Investigations indicate that the Stubhampton source has little significant influence on the natural pattern of events but we do not dismiss the possibility of a connection with the Shapwick source.

With the fullest cooperation of the local communities, we have been monitoring the rise and fall of stream flows in recent years to attempt to identify their natural characteristics. We now consider that a more detailed investigation of the possible influence of the Shapwick borehole is warranted involving field investigations

aimed at improving our understanding of groundwater movement and the links between groundwater and the river.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
12a Continue monitoring groundwater levels and river flows utilising the existing expanded network of locations	Agency	Unknown	→				
12b Drill new boreholes and monitor water levels between the Tarrant, Stour and Shapwick pumping station in order to determine the impact of groundwater abstraction on surface flows	Agency	20	●				
12c Review results of above when sufficient data have been gathered. <i>Liaise with North Dorset District Council Local Agenda 21 Group regarding their proposed hydrological and environmental study of the Tarrant valley</i>	Agency	Unknown	● ●				
12d Consider construction of a gauging station in the vicinity of Tarrant Crawford	Agency	Unknown	● ●				
12e Establish baseline data for the river against which to assess future impacts. <i>Need River Corridor Surveys, River Habitat Surveys and invertebrate data</i>	Agency	5					
12f Explore the potential to optimise channel morphology for fish survival in low flow. <i>Following on from these hydrological investigations</i>	see Action 13I						

3.13 Constraints on fish populations

The Stour is fished from Gillingham to Christchurch, and the lower river in particular is a coarse fishery of national repute. There are local concerns about fish populations related to obstructions to fish movement and the loss of habitat diversity. There has also been a decline in populations of migratory salmonids.

Local angling clubs claim that coarse fishing on the Stour, particularly the middle and upper reaches, has declined as a result of major flood alleviation schemes in the 1970s, and also as a result of perceived increases in the numbers of cormorants on the rivers in recent winters.

Coarse fish populations on the Moors River are at the lower end of the expected range of densities, and it is believed that Hurn Weir used to restrict upstream migrating dace in the autumn and winter in all but the very highest flows. We have recently incorporated a new fish pass in the weir, and published a leaflet describing its construction and function.

There are various obstructions to fish migration along the Allen and Crane which, while posing no problems provided there is an ample volume of water passing over them, have obstructed movement of fish for longer each year due to the low flow conditions experienced in recent years. We are also trying to achieve physical habitat improvements by gravel loosening and cleaning where appropriate; this should improve the use of the currently available habitat.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
13a Hurn Weir has been rebuilt to facilitate passage of fish, but we still have to carry out monitoring of fish migration at appropriate times of year. <i>A new publication has been produced outlining the design and function of the fish pass which is the first of its kind</i>	Agency	Unknown	●				
13b Coarse fish habitat improvement at Nutford Farm. <i>Includes creating refuge habitat for coarse fish and habitat improvement for otters</i>	Agency	6	●				
13c Coarse fish habitat improvement at Bryanston School. <i>Includes desilting, clearing and replanting work</i>	Agency	5	●				
13d Coarse fish habitat improvement at Langton Long	Agency	9	●				
13e Further coarse fish habitat improvement projects at other locations (e.g. Kingsmill) as funding allows. <i>This work is mainly carried out in conjunction with flood defence maintenance</i>	Agency	5pa	→				
13f Produce Stour Salmon Action Plan. <i>This will provide a clear plan of action with targets to work to</i>	Agency	4			●		
13g Investigate migration conditions for sea trout on the Crane and Mannington. <i>Identify and take action to reduce any obstructions</i>	Agency	5	●				
13h Carry out a review of existing data on the Crane to investigate concerns regarding low flow expressed by Dorset Wildlife Trust	Agency	2				●	
13i We are contributing to a National study on the impact of cormorants and other fish-eating birds on fish stocks. <i>This will allow the development of approaches to the control of these impacts</i>	Agency DETR MAFF	£1M Nationally	●	●			
13j We will offer advice to those whose fisheries are affected by predatory birds regarding the options available to them at present	Agency	Unknown	→				
13k Specific Actions on the Allen	see Section 3.10						
13l Explore potential to optimise channel morphology of the Tarrant for fish survival in low flow. <i>Following on from hydrological investigations in Action 12</i>	Agency fishery interests	2	●				
13m Monitor impact of public water supply abstractions on the Tarrant	see Action 12c						
13n Carry out a fish population survey on the Stour	Agency	Unknown		●			

3.14

Loss and decline in the value of riverine and floodplain habitat

The river floodplain habitat has been significantly reduced in many places to a narrow strip. This has resulted in patchy habitat which has reduced the value of the remaining habitat and potentially makes the impact of river maintenance work much more severe. Some watercourses in the catchment have been greatly modified and the loss of meanders, marsh and ditches has further reduced the value in riverine and floodplain habitat.

We need to promote the aim of linking the remaining valuable habitat. The Blackmore Vale Restoration Project is one of four areas in England where an English Nature project is promoting the restoration of a range of wildlife habitats including woodlands, hedgerows, grasslands, rivers and streams. This will provide shelter, breeding sites and suitable habitats for a range of species including owls, bats, otters and curlew. The Project is expected to contribute towards the maintenance and enhancement of biodiversity in the catchment. Improvements in habitat will require us to review our own flood defence maintenance operations and to work in partnership with riparian owners to secure improvements.

Agricultural Incentive Schemes, such as the Habitat Scheme, Water Fringe Option and Countryside Stewardship (Ministry of Agriculture, Fisheries & Food), and Gillingham Royal Forest can be used to support forms of agriculture which balance the needs of the environment with production.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
14a Encourage a reduction in agricultural intensification of the floodplain. Explore schemes. <i>Possible wetland officer to promote biodiversity of key habitats and species e.g. breeding waders. Possible partnership with Ministry of Agriculture, Fisheries & Food</i>	Agency	Unknown		●	●		
14b Review South Wessex Downs Environmentally Sensitive Area. <i>Includes a small section of the Stour catchment. Possible partnership with Ministry of Agriculture, Fisheries & Food</i>	Agency	Unknown	●				
14c Contribute to the Blackmore Vale Restoration Project which involves the Lydden, Caundle, Cam and parts of the Divilish. <i>We will be funding a leaflet and working materials</i>	Agency EN	0.6	●				

3.15

Protection of ecologically important habitats and species

In 1994, the Government published the *UK Biodiversity Action Plan* as its response to the international initiative for conserving biodiversity. This plan led to the establishment of a steering group which produced outline plans and targets for the most threatened species and habitats in the UK.

The Government has identified formal contact points for each of these species and habitats. We have been named as the National contact point for one habitat (chalk rivers), and twelve species, at least six of which have been recorded in the South Wessex Area: water vole, otter, white-clawed crayfish, depressed river mussel, southern damselfly, and a pea mussel *Pisidium tenuilineatum*.

There has been a lot of work undertaken at Regional level to translate the UK Biodiversity Action Plan into on the ground actions. *The South West Regional Biodiversity Action Plan* contains 31 target-based action plans for some of the

Region's most threatened habitats and species. These spell out in clear terms what needs to be done by whom if biodiversity in the South West is to be conserved, and where possible enhanced. This table outlines the habitats and additional species that are thought to occur in the Stour catchment.

Habitats	Species
Reedbed	Pipistrelle bat
Standing open water	Harbour porpoise
Coastal and floodplain grazing marsh	Great crested newt
Estuaries	Allis shad
Rivers and streams	Medicinal leech
Sand dunes	Desmoulins whorl snail
Lowland heathland	Starlet sea anemone

At a local level, we are also involved in work to produce a Biodiversity Action Plan for Dorset. This will provide a focus for biodiversity action in the catchment. It will set local targets and priorities for everyone involved in the delivery of biodiversity.

Our input to biodiversity will involve action across the range of our water management and pollution prevention activities. At an Area level, we will create a database of habitats, species and relevant actions from National, Regional and Local Biodiversity Action Plans which will assist us in identifying priorities and ensuring that all our functions are clear regarding their role in delivering biodiversity.

Although we can directly influence some of the activities affecting the quality of the water environment, achieving environmental sustainability requires the commitment and cooperation of many people and organisations. We will collaborate with other organisations to set targets, prepare and implement the UK Biodiversity Action Plan for key species and habitats.

In addition to our work on the UK Biodiversity Action Plan, we will play our full part in contributing towards the appropriate management of protected sites in the catchment. These include Sites of Special Scientific Interest, proposed Special Areas for Conservation nominated under the EC Habitats Directive, and proposed Special Protection Areas nominated under the EC Birds Directive.

With regard to Special Areas for Conservation and Special Protection Areas, the Agency is a competent authority, and has extra responsibilities regarding their protection; specifically we are obliged to review all existing authorisations affecting these sites, taking advice from English Nature into full account.

3.15.1 Otters

Formerly widespread throughout the UK, the otter underwent a rapid decline in numbers from the 1950s to 1970s and was effectively lost from midland and south-eastern counties of England by the 1980s.

Monitoring of pesticide levels in eels, a major food source of otters, has shown that pesticide levels, which were known to be high in some parts of the catchment, are stable or in decline. Habitat quality is good but patchy; some lengths of river are almost devoid of tree and shrub cover and this, coupled with increasing access in river corridors, may be limiting factors. Improvements in bankside habitat may assist the spread of otters in the catchment.

The Dorset Wildlife Trust Otters and Voles Project, the Blackmore Vale Restoration Project, the Stour Valley Way initiative and our own operations will all contribute to the maintenance and enhancement of suitable habitat.

3.15.2 Crayfish

The native white-clawed crayfish was widespread throughout the UK, and throughout the Stour catchment. The introduction of American signal crayfish for farming brought with it a virulent fungal infection which proved fatal to our native crayfish; its numbers have declined since 1984, and none have been seen in the Stour since 1986, although some are still present in tributaries like the Allen.

The infection can be spread on damp equipment and mud, and also by birds, fish, mink and otters. Crayfish are also susceptible to habitat modification, especially dredging and weed removal, and water quality, especially siltation and herbicides. We have published a leaflet *Preventing the Spread of Crayfish Plague in the South West* which is available from our offices.

3.15.3 Water voles

We are supporting a project run by Dorset Wildlife Trust to find out the current distribution of water voles in the county, and to advise on appropriate habitat management. A National research project is studying the interactions between water voles and mink, by trapping and radio tracking, habitat manipulation, and analysis of land use and water quality data. This is a two year project due to report in 1998.

3.15.4 Southern damselfly

All occurrences of southern damselfly in this area are on Sites of Special Scientific Interest. Research into habitat management plans indicates that the current management of these sites is appropriate and there are no actions proposed at present.

3.15.5 Headwater streams

Headwater streams of the Stour catchment have been identified in recent studies as containing rare invertebrate populations, and winterbourne sections are known to contain a specialised fauna. These could be at risk from future abstraction proposals and agricultural activities. Where resources permit, we will sample the invertebrates of selected reaches of the potentially more vulnerable rivers to provide data on which we can assess future proposals.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
15a Review all authorisations affecting Special Areas for Conservation and Special Protection Areas. <i>There is a requirement under the EC Habitats Directive to identify significant problems and prepare strategies, and it will cost £87k in the South West Region</i>	Agency	Unknown	●	●	●		
15b Regional otter survey	Agency	Unknown		●			
15c We will provide post mortem analyses of any dead otters found in the catchment. <i>Details are available from our offices</i>	Agency	Unknown	→				
15d Create a database of habitats, species and relevant actions from National, Regional and Local Biodiversity Action Plans. <i>This will allow priorities and actions to be identified and to be incorporated in future plans</i>	Agency	Unknown	●				

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
15e Participate in the County Forum to develop a County Biodiversity Action Plan. <i>This will set biodiversity targets which can be applied to the Stour catchment</i>	Agency DCC, EN DWT, RSPB	Unknown	●	●			
15f Dorset Vole and Otter Project. <i>A collaborative project to set up a site to illustrate best practice for otter and water vole habitat management. A leaflet outlining appropriate habitat management methods will be published</i>	DWT NT Agency	14	●	●			
15g Review South Wessex Otter Survey and prioritise rivers for action	Agency	1		●			
15h Prepare strategy for Christchurch Harbour	see Action 18d						
15i Monitor headwater streams and winterbournes for invertebrates. <i>Subject to funding</i>	Agency	Unknown				●	
15j Explore opportunities for partnership with Environmental Trusts. <i>Part of the new Landfill Tax can be diverted into Environmental Bodies (Trusts) for environmental improvements. These improvements have to be related to the results of waste disposal activities or carried out in the vicinity of a landfill</i>	Agency	Unknown	●	●			
15k Contribute to the Blackmore Vale Restoration Project	see Action 14c						

3.16 Need to protect features of archaeological interest

There is much known archaeology in some parts of the catchment, but there are other areas where little is known. We have a statutory duty to protect and conserve buildings, sites and objects of archaeological, architectural or historic interest.

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

As very little is known about the wetland archaeology of the catchment, we need to further identify this resource.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
16a Feasibility study to identify potential for water meadow archaeology. <i>The initial study will involve the Allen, but may help identify future requirements elsewhere in the catchment. Work will be carried out in collaboration with County Council archaeologists</i>	Agency	10	●				

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

In March 1997, the Government published the UK National Air Quality Strategy, which sets standards and objectives for air quality in the UK and provides guidance on how these may be met through action at National and local levels. Following a programme of pilot projects and the expected publication of further guidance in April 1998 at the earliest, local authorities will be reviewing air quality in their areas. If certain standards or guidelines are exceeded, an air quality management area may be designated which will require an air quality management plan to be developed.

There are a number of regulatory bodies with responsibility for local air quality, including ourselves, the Department of the Environment, Transport and the Regions, local authorities and the Police. These organisations will need to work closely together if environmental improvements are to be achieved.

We authorise and regulate emissions to air from certain industrial processes under Part 1 of the Environmental Protection Act 1990. We have set a series of strategic targets at a National level for reductions in emissions from Agency-regulated processes, which covers the contribution that these will make to achieving National and international commitments including the National Air Quality Strategy. They are based on our current best estimates of emission levels and may need to be adjusted:

- carbon dioxide - Agency-regulated processes account for 265 million tonnes in 1995, an estimated 45% of UK total emissions; our target is to reduce this by 5% by 2000, and by 20% by 2010
- sulphur dioxide - Agency-regulated processes account for 1.6 million tonnes in 1995, an estimated 70% of UK total emissions; our target is to reduce this by 75% by 2005
- nitrogen oxides - Agency-regulated processes account for 512 thousand tonnes in 1995, an estimated 22% of UK total emissions; our target is to reduce this by 33% by 1998
- fine particles (PM10) - Agency-regulated processes account for 47 thousand tonnes in 1995, an estimated 20% of UK total emissions; our target is to reduce this by 67% by 2000
- dioxins - Agency-regulated processes account for 1,100 grams in 1995, an estimated 80% of UK total emissions; our target is to reduce this by 80% by 2000
- carbon monoxide - Agency-regulated processes account for 361 thousand tonnes in 1995, an estimated 6.6% of UK total emissions; our target is to reduce this by 5% by 2000
- lead - Agency-regulated processes account for 167 tonnes in 1995, an estimated 11% of UK total emissions; our target is to reduce this by 20% by 2000
- other metals - we do not have accurate data for UK total emissions, but our target is to reduce these by 20% by 2000

- volatile organic compounds excluding methane - Agency-regulated processes account for 330 thousand tonnes in 1995, an estimated 15% of UK total emissions; our target is to reduce this by 20% by 2000
- other greenhouse gases - Agency-regulated processes account for 68 thousand tonnes of dinitrogen oxide in 1995, an estimated 80% of UK total emissions; our target is to reduce this by 75% by 2000

At a local level there is concern that acid deposition may be changing heathland areas into grassland by acting as a fertiliser. The National targets to reduce emissions of sulphur dioxide and nitrogen oxides from Agency-regulated processes will contribute to reducing these impacts.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
17a 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. <i>Agency-regulated processes account for an estimated 70% of total UK emissions</i>	Agency	Unknown	●	●	●	●	●
17b 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. <i>Agency-regulated processes account for an estimated 22% of total UK emissions</i>	Agency	Unknown	●	●			

3.18

The development of recreation

Many people spend their spare time enjoying our rivers and coasts. We examined the recreational use of this catchment in 1995, and it provides good opportunities for land-based and water-based recreation. Some parts are already under considerable pressure, while others may be under-utilised.

Recreational activities can result in tremendous pressure on our environment and result in conflicts of interest between various activities. There is scope for increasing the recreational use of the river corridors where this does not conflict with other legitimate uses of the river; this is particularly so in urban areas where there is also scope for educational use.

We own and operate a series of fishing ponds at Little Canford near Wimborne and continue to improve the facilities here for both able-bodied and the disabled, and also for educational groups.

We will work with other organisations to promote and develop the recreational use of water in the catchment where such use can contribute to an appropriate balance of uses.

Christchurch Harbour is an important recreational and ecological resource that is subject to many competing pressures. We will explore with other parties the best approach to obtaining a sustainable use of this resource.

Actions	Action By	Cost to Agency (£K)	Financial Year				
			97	98	99	00	01
18a Provide native tree and shrub plantings, and steps for safe access to the river on the Stour Meadows development. <i>The Stour Valley Project will oversee this work in conjunction with Dorset County Council, North Dorset District Council and Dorset Wildlife Trust</i>	Agency	5	●				
18b Explore further opportunities for interpretation and enhancement projects along Stour Valley Way and Little Canford Ponds. <i>We will consider interpretation boards & centres, footpath improvements. Possible partnerships with Dorset County Council, local authorities</i>	Agency	2	●				
18c Implement improvements to canoe facilities. <i>As opportunities arise. This year we will fund a canoe platform near Blandford. Possible partnerships with British Canoe Union</i>	Agency	0.9 pa	●	●	●	●	●
18d Develop strategy for Christchurch Harbour. <i>Possible partnerships with English Nature, Royal Society for the Protection of Birds, users and local authorities</i>	Agency	Unknown		●	●		
18e Increase educational use of Little Canford Ponds	Agency	Unknown		●			
18f Build two educational ponds at Moors Valley Country Park	Agency EDDC volunteers	0.5	●				

4. Summary of public consultation

Approximately 600 Consultation Reports were circulated, and we received 48 responses, including those from:

National Organisations

Department of the Environment
The Forestry Authority
National Farmers Union
Countryside Commission
Farming and Rural Conservation Agency
English Nature
English Sports Council
Ministry of Agriculture, Fisheries & Food

Planning Authorities

Dorset County Council
Bournemouth Borough Council
Christchurch Borough Council
North Dorset District Council
West Dorset District Council

Regional and Local Organisations

Wessex Salmon Association
Dorset Important Geological Sites
Dorchester & District Angling Society
River Allen Association
Wessex Federation of Angling Clubs
Dorset Wildlife Trust
Christchurch Angling Club
Gillingham & District Angling Association
Friends of the Riverside
Mineral & Resource Planning Associates
Bournemouth & West Hampshire Water
Wessex Water Services
Savills (Crichel Estate)
Somerset Wildlife Trust
Dorset County Museum

Seventeen responses were also received from individual members of the public. Some of the comments and concerns are summarised below:

4.1

Our vision

English Nature suggested that the wording of the vision statement, which emphasises balance, could be interpreted as trading off environmental quality. They suggested the following wording:

Our vision of the Dorset Stour is of a healthy and diverse catchment, managed in a sustainable way in which human economic and social needs are met in ways which will maintain high environmental quality standards.

4.2

Fisheries

Concern was expressed over the increasing numbers of cormorants in the catchment and their impact on fish populations.

Our comment: there does appear to have been an increase in the number of birds during this last winter. Concerned organisations must present a case to the Ministry of Agriculture, Fisheries & Food if they want a licence to control cormorant numbers; we will offer advice to assist in this process. We are also investigating the impact of fish-eating birds nationally.

It was felt that we should devote greater resources to restocking, particularly on stretches of rivers isolated by sluices, weirs and similar structures.

Our comment: it is our policy locally to invest resources in habitat improvement in preference to restocking, and this often involves improving fish migration routes to isolated stretches.

4.3

Water resources

Concern was expressed over the proposal to allow Bournemouth & West Hampshire Water to increase abstraction at Longham.

Our comment: we are very aware of the potential for problems as the scale of abstraction develops at Longham, and we are looking towards developing a licence for Bournemouth & West Hampshire Water that is related to prevailing flow conditions in the river.

4.4 Water quality

Several consultees expressed concern over the quality of the Stour between Durweston and Spetisbury. It was felt that the cause of the River Quality Objective failure, and proposals to rectify the situation, between Blandford and Spetisbury should have been included in the plan.

Our comment: this problem results largely from the algal blooms experienced in the early summer, which reflects the nutrient enrichment on this part of the river. We are currently evaluating methods of reducing nutrient inputs to the river, both from treated sewage effluents and from agricultural sources.

The English Nature response particularly concentrated on a number of water quality concerns especially the need for a River Quality Objective for the Bourne Stream, the impact of agriculture on water quality, and the effects of runoff in the Moors River catchment. Dorset Wildlife Trust similarly identified the Moors catchment as being of particular concern, citing not only water quality issues but also low flows, conservation issues and weed management problems.

4.5 Conservation

Dorset Wildlife Trust in particular raised a number of concerns that we should propose sufficiently positive Actions for the many conservation and biodiversity issues.

4.6 Flood defence

Concern was expressed over the weir at Blandford; it was felt that it had resulted in the formation of an island.

Our comment: the shoaling below the weir is a common occurrence below structures where flow is controlled. In the past, the shoaling at Blandford weir has been removed on several occasions by various authorities; in recent years it has been kept undisturbed as wildlife use it as a sanctuary, especially when the Ham area gets busy. We are planning to remove 50% of the shoaling that is starting to build up, and have discussed this with North Dorset District Council, to agree the best time to carry out this work.

4.7 Waste disposal

Several consultees were concerned over the spreading of sewage sludge to land and that Map 23 in the Consultation Report was inaccurate.

Our comment: we have only very limited powers to regulate spreading of sludge for the improvement of agricultural land where these are carried out in line with the published guidance. We will take action where due care is not taken. Map 23 shows the land notified for spreading of industrial sludges and septic tank waste but not sewage sludge. Wessex Water Services have no legal obligation to notify us of sludge spreading operations where these are carried out for the improvement of agricultural land.

4.8 Recreation

Concerns were expressed that the development of recreational use of the Stour would be in conflict with green corridors and habitat improvement.

Our comment: we consult widely and seek to balance various types of recreation with other uses. We have no plans to seek powers to regulate such uses, and involve and cooperate with all parties.

4.9

Agricultural practices

Several consultees expressed concerns over the use of synthetic pyrethroid sheep dips, runoff from agricultural land and the erosion of banks caused by agricultural practices.

Our comments: sheep dip must not be allowed to discharge into watercourses or underground strata, and if it does the Agency will take legal action. Most of the dipping is carried out by contractors and we have plans to approach a number of these firms to advise them on their practice. The issue of runoff from agricultural land has been recognised as a problem for some years, and we have produced a leaflet on Buffer Strips. We have research programmes in place on the upper Avon and Piddle to investigate practical solutions to this problem and when appropriate methods have been determined they will be applied to other catchments.

4.10

The questionnaire

A simple questionnaire was sent out with the Consultation Reports; 32 of the 48 responses included questionnaires.

Of the 32 responses, 23 agreed with our Vision Statement, and 19 considered that all the Issues had been addressed. Twelve found the plan Easy to Read, the remaining 20 found it Moderate.

The Most Important Issues identified included: Setting of water quality targets, Impact of agriculture on water quality, Impact of sewage and sewerage on water quality, and Loss and decline in the value of riverine and floodplain habitats.

The respondents generally found it more difficult to identify the Least Important Issues, but the following were indicated: The need to protect features of archaeological interest, The effect of acid rain on heathland areas in the lower catchment, Potential effects of climate change on the environment, and Contaminated land.

Further concerns identified by respondents included:

- watercourse loading from soil erosion
- impact of road runoff on water quality
- emplacement of buffer strips and restoration of watermeadows

5. Glossary of terms

BWHW	Bournemouth & West Hampshire Water Plc
DCC	Dorset County Council
DETR	Department of the Environment, Transport and the Regions
DWT	Dorset Wildlife Trust
EC	European Community
EDDC	East Dorset District Council
EN	English Nature
EU	European Union
HMSO	Her Majesty's Stationery Office
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries & Food
NRA	National Rivers Authority
NT	National Trust.
OFWAT	Office of Water Services, the Government regulatory agency for the water industry
RSPB	Royal Society for the Protection of Birds
WWS	Wessex Water Services Ltd

6. References

Cordrey, L. (ed) (1997) Action for Biodiversity in the South West - A Series of Habitat and Species Plans to Guide Delivery. Prepared by a partnership of the Royal Society for the Protection of Birds, the County Wildlife Trusts and the South West Regional Planning Conference

EC Directive Concerning the Quality of Bathing Water (76/160/EEC)

EC Directive on the Conservation of Wild Birds (79/409/EEC)

EC Directive on the Protection of Groundwater against Pollution Caused by Certain Dangerous Substances (80/86/EEC)

EC Directive Concerning Urban Waste Water Treatment (91/271/EEC)

EC Directive Concerning the Protection of Waters against Pollution Caused by Nitrates from Agricultural Sources (91/676/EEC)

EC Directive on Species and Habitats (92/43/EEC)

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HMSO (1996) A Review of the Potential Effects of Climate Change in the United Kingdom. UK Climate Change Impact Review Group

National Rivers Authority (1993) River Allen Low Flow Investigations. Final Report and Recommended Actions

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

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