

EA-Thames Box 6

**RIVER KENNET  
CATCHMENT MANAGEMENT PLAN  
THIRD ANNUAL REVIEW  
JULY 1996 - JULY 1997  
SECOND AND FINAL DRAFT**

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**RIVER KENNET PICTURE**

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**THAMES REGION MAP  
WITH KENNET  
CATCHMENT HIGHLIGHTED**

**ENVIRONMENT AGENCY  
THAMES REGION**

**SEPTEMBER 1997**  
THAMES REGION

**27 AUG 1997**

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# OVERVIEW OF CATCHMENT

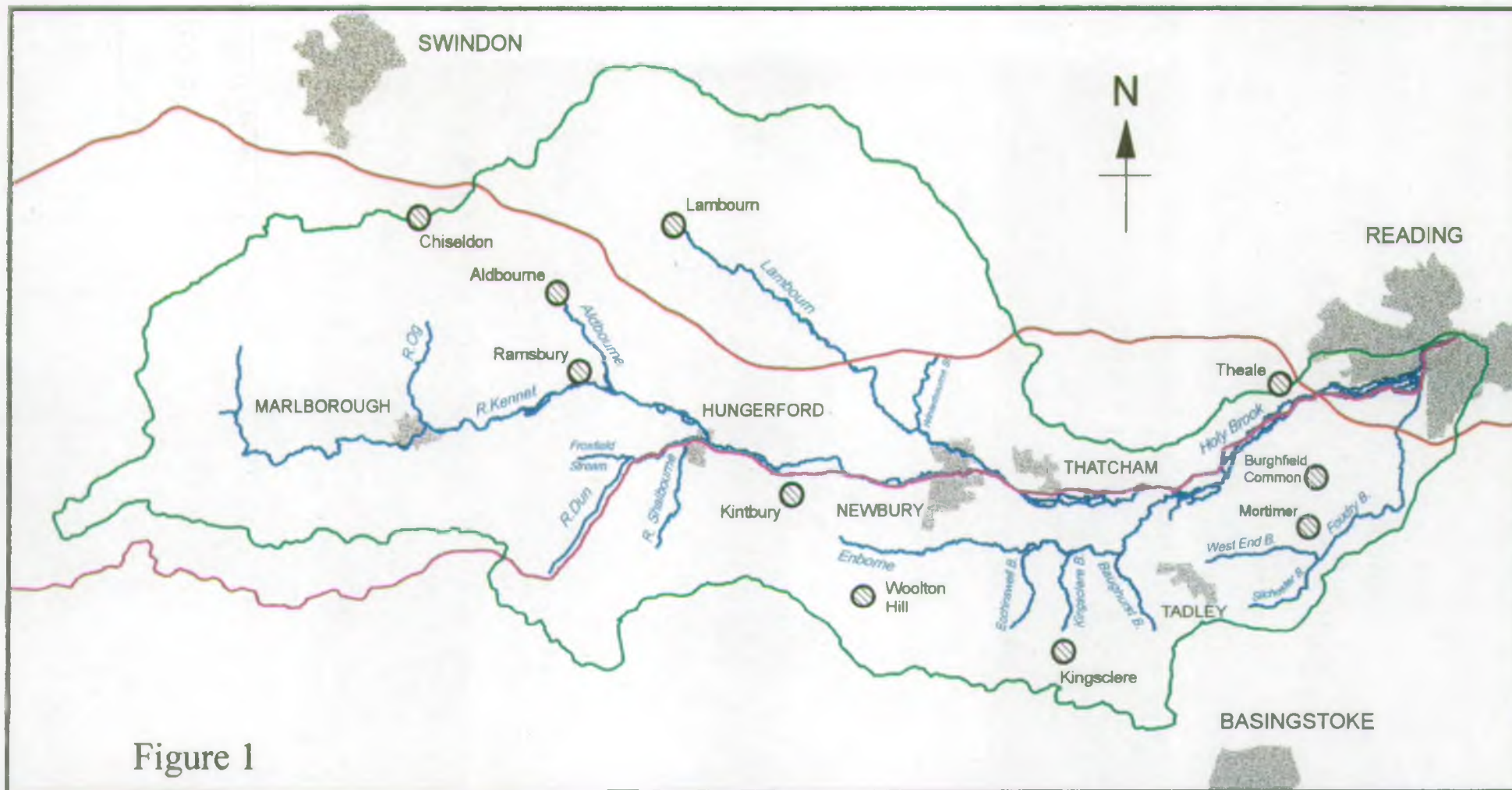



Figure 1

<p><b>KEY</b></p> <p>SCALE</p> <p>0 ————— 10 km</p>		Catchment Boundary		Urban Area
		Main River		Town / Village
		Kennet and Avon Canal		
		M4 Motorway		



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## EXECUTIVE SUMMARY

The publication of the River Kennet Catchment Management Plan's Final Report in April 1994 greatly assisted in identifying the issues that we needed to consider, and respond to, in order to protect and improve the water environment.

Since then, we have annually reported on the progress of the Action Plan contained in the Final Report. This third Annual Review summarises the Agency's and in some cases other organisations progress on actions set out in the Action Plan.

The Axford Public Inquiry was the biggest single issue in terms of time and commitment for the Agency in the catchment during 1996 and a decision on the varied licence is still awaited. The Agency also successfully prosecuted some companies for abstracting water without a licence or for discharging chemicals into the river leading to fish kills.

A total of 83 actions were identified in the Final Report of the Kennet Catchment Management Plan. Of these actions 71 have been successfully completed or are on target for completion, 8 are behind target and 4 are no longer relevant. 3 new actions have been added.

Your involvement in the process of catchment planning is very welcome. If you wish to discuss any matters arising from this document please contact:

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## 1.0 THE VISION

*The River Kennet is the largest tributary of the Thames contributing almost half the summer flow downstream of their confluence in Reading. The Kennet is fed by seven major tributaries.*

*The River Kennet is a river of good water quality supporting excellent coarse and game fisheries and a public water supply from Fobney in the lower catchment.*

*The River Kennet from Marlborough to Woolhampton, and the whole of the River Lambourn, have been designated as River SSSIs in acknowledgement of their national importance for their plant and animal communities and as good examples of their respective lowland river types. In addition, a number of riparian SSSIs together constitute the Kennet and Lambourn Floodplain candidate Special Area of Conservation (SAC) due to the presence of important populations of Desmoulin's Whorl Snail.*

*In the upper reaches of the catchment groundwater is abstracted and provides a source of supply for, amongst others, Swindon, Marlborough and Ogbourne St. George. The still waters of the lower Kennet valley are a valuable recreational and ecological resource which, combined with the Kennet and Avon Canal, provide angling, bird watching, walking, nature conservation and picnic facilities.*

*Development pressure will continue to be a perceived threat and conflicts between the canal's users will need to be addressed and an acceptable balance achieved.*

*The management of flood risk too, is a key objective and Agency activities in the catchment should reduce the risk of flooding in urban and semi-urban areas.*

*To achieve a sustainable policy of conservation of water resources and environmental enhancement, the Agency will work in partnership with Local Authorities and other key participants. This plan will provide an important focus for this partnership. Our aim is not only to maintain the existing values of the water environment of the Kennet catchment but also to provide improvements to flood defences and degraded habitats, to create open green spaces, and to improve public access (where appropriate). The Agency will work to ensure the Kennet and its tributaries are well-managed watercourses of natural appearance, forming attractive green corridors connecting the countryside with urban areas.*

## **2.0 INTRODUCTION**

Catchment Management Planning was established by the National Rivers Authority (NRA) to facilitate the improvement of the water environment through exercising its own duties and in partnership with others. A Catchment Management Plan (CMP) identifies the existing values of the catchment, the key issues and problems in a **Consultation Report**. An **Action Plan** is then produced in which actions are described that are needed to protect the existing quality of the catchment and to address the issues and problems. In the Kennet catchment the Consultation Report and the Action Plan were published in 1993 and 1994 respectively. An Annual Review charting the progress of the various actions has been published every year and this report is the Third Annual Review describing the progress made between August 1996 and August 1997.

In April 1996, the NRA amalgamated with Her Majesty's Inspectorate of Pollution (HMIP) and the Waste Regulation Authorities and several units from the Department of the Environment to form one single Environment Agency (Agency). The Agency is a strong environmental regulator and takes a holistic approach to protecting the environment which involves regulating activities that can affect air, land and water.

The process of Catchment Management Planning has been expanded because of the formation of the Agency. The new process is known as Local Environment Agency Planning and will take into account the full range of responsibilities of the Agency and will also aim to further develop partnership with others.

The Catchment Management Planning process and the Local Environment Agency Planning process are broadly similar and the latter also includes the production of Consultation Reports, Action Plans and Annual Reviews. For the Kennet catchment this Annual Review will concentrate on progress made on actions described in the published Action Plan. These actions only take account of the water environment. A Local Environment Agency Plan will be produced for this catchment towards the end of 1999.

Good progress has been made in 71 of the 83 actions. A number of notable achievements have been made by the Agency and in partnership with other organisations.

It is recommended that this Annual Review is read in conjunction with a number of other documents in the series, which are listed on the back page.

### **3.0 CATCHMENT OVERVIEW**

#### **3.1 KEY CATCHMENT STATISTICS**

Catchment area	1164 km <sup>2</sup>
Population within catchment (1993)	211, 000
Average annual rainfall	764 mm
Length of watercourse maintained by Agency for flood defence purposes	314 km
Length of watercourse with River Quality Objectives	315 km

#### **3.2 CATCHMENT DESCRIPTION**

- 3.2.1** The River Kennet rises to the north west of Marlborough and generally flows eastwards to its confluence with the Thames at Reading, a distance of some 98 km, passing through the towns of Marlborough, Hungerford, Newbury and Thatcham (see Figure 1).
- 3.2.2** The Kennet catchment contains watercourses and adjacent habitats of national conservation importance. The River Kennet from Marlborough to Woolhampton, and the whole of the River Lambourn, have been designated as River SSSIs in acknowledgement of their high biodiversity and as representatives within a series of designated chalk stream rivers in England. A number of the wetland SSSIs adjacent to the rivers have together been designated as the Kennet and Lambourn Floodplain SAC under the EU Habitats Directive on account of their important populations of Desmoulin's Whorl Snail which is also a high priority species under the UK's Biodiversity Actions Plan.
- 3.2.3** The catchment contains many excellent wildlife habitats and a number of EC designated Cyprinid and Salmonid fisheries. In the west and north of the catchment the watercourses are spring-fed chalk streams and the River Kennet upstream of Newbury supports a number of well known trout fisheries. Recent water quality surveys (1993-95) indicate that the quality in the catchment is predominantly good, with a few stretches being fair and a couple of stretches being of poor quality.
- 3.2.4** Much of the catchment falls within the North Wessex Downs Area of Outstanding Natural Beauty (AONB) - a nationally recognised designation by the Countryside Commission. The high quality of the rural landscape and the archaeological importance of sites such as Avebury (a designated World Heritage Site) ensure that the western part of the catchment is strongly protected from large scale development.

- 3.2.5** Further east, however, the Kennet valley has seen significant change over the last 40 years with urban development at Newbury, Thatcham, Tadley, Theale and Reading and mineral extraction at numerous sites between Newbury and Reading.
- 3.2.6** Pressure for urban expansion and mineral extraction is continuing. Where such development takes place, while having a major impact on the landscape of the valley, opportunities can be taken to enhance the water environment where there are degraded habitats.
- 3.2.7** The Kennet and Avon Canal was reopened in 1990 and forms an important resource in terms of recreation and fisheries. British Waterways own and operate the canal which has historically suffered from a lack of water in its western reaches. The eastern half of this navigation falls within the boundary of the Kennet catchment, a length of 58 km incorporating 53 locks. East of Newbury the Kennet and Avon Canal is partly a canalised river, with alternate lengths of the navigation in the original river channel and in specially cut canal sections.



#### **4.0 SUMMARY OF PROGRESS**

The original Action Plan had 83 actions. In the second annual review 3 actions were deleted and 2 new actions added. In this Annual review period one action has been deleted and one new action added. The overall progress for the actions since April 1994 is given below.

36 completed	4 deleted
35 on target	2 new actions (2- 1995/96)
8 behind target	

#### **4.1 NOTABLE ACHIEVEMENTS IN THE THIRD YEAR**

(References following sub-headings indicate the issue number in the Action Plan)

##### **4.1.1 Upper Kennet River Levels and Flows - Axford Public Inquiry: WR1**

Thames Water Utilities Ltd (TWUL) application to vary their abstraction licence for Axford was determined, by the then NRA, in March 1995, imposing increasingly severe restrictions on the amount of water that could be abstracted; this amount would be reduced when the flow in the river fell below a certain level, the flow constraint. TWUL appealed to the Secretary of State for the Environment against the decision.

The flow constraint was based mainly on the results of two computer models, namely the Kennet groundwater model and PHABSIM (Physical HABitat SIMulation).

The Kennet groundwater model shows how water taken out of the ground near the Kennet at Axford reduces the amount of water in the river. This reduction occurs soon after pumping starts. The lower the flow in the river, the greater the effect proportionally of the Axford abstraction. The PHABSIM model predicts how changes in river flow affect the habitats of certain important plants and animals, primarily for the various life stages of brown trout.

The Agency believes the model shows that during times of low flow, the abstraction at Axford may damage the brown trout habitat, particularly during their juvenile stages, by reducing the amount of habitat available to them.

PHABSIM is widely used in the United States and Europe. It was first used in the UK in 1988 and has been applied in over 20 studies on different rivers.

The Public Inquiry began on the 15th October 1996 and finished on 28th November with a formal site inspection. The final decision is awaited. The Inquiry itself is run very much like a court with both sides represented by Counsel and drawing on their witnesses who were of course subjected to rigorous cross examination. It was very paper intensive with more than 40 proofs of evidence, 22 technical reports and over 120 other documents being submitted.

The project team, comprised Agency staff representing the Agency's interests in water resources, fisheries, conservation, flood defence, biology, pollution prevention and control and public relations.

#### **4.1.2 Weed growth in the River Kennet: 3.5(v)**

In recognition of the perceived ecological deterioration of the River Kennet from Marlborough downstream to Kintbury, the Agency and TWUL have agreed, in principle, to a pilot study involving the reduction of phosphate concentrations in the discharge from Marlborough STW. Thames Water will be responsible for the installation of plant and the monitoring of discharge flows and concentrations. The Agency will undertake all the associated in-river monitoring to investigate the impacts of the reduced discharge of phosphorus on the water quality and ecology of the River Kennet. TWUL is currently refining the specification of the installation in line with Agency requirements and it is envisaged that the plant will be operational in September. In the meantime, the Environment Agency will draw up a monitoring programme and begin monitoring to ensure that the current status of the river is fully understood.

This is an excellent example of a partnership approach which was a direct result of public concern, articulated principally by ARK (Action for the River Kennet) and of a clear duty to address a problem which is affecting a Site of Special Scientific Interest.

#### **4.1.3 Rivers and Environmental Spaces Clean-up Event, RESCUE: WQ9**

The now annual RESCUE took place in March on the Thames through Reading and on the Kennet from Kintbury to the Thames confluence. Prime sponsors are the Agency, Reading Borough Council, Cleaner Kennet Campaign, Newbury District Council and the Kennet and Avon Canal Trust. The Agency provided tugs and barges (manned by 12 flood defence staff) to clear water-bound debris and ferry the rubbish to central disposal points. 500 volunteers helped with the clean up; among them were Agency staff, canoeists, divers, ramblers, scouts, school children (300), conservationists, anglers and representatives from over 45 different community groups. Together, they collected over 55 tonnes of rubbish (dozens of shopping trolleys, bicycles, household appliances, thousands of aluminium cans and plastic bottles (the last two categories were sent for recycling). RESCUE is a great example of voluntary, co operative and enthusiastic endeavour.

#### **4.1.4 Thatcham Reed Beds SSSI: FC3**

An agreed Management Plan has been produced by the RSPB on behalf of the Steering Group for the site. A full Water Level Management Plan (WLMP) has also been produced by the Agency for the site.

Last year enhancement works, involving the installation of a sluice and excavation of new ditches, was undertaken on the site, as the first phase of works in accordance

with the Management Plan and WLMP. This was a successful partnership between the Agency, English Nature, Newbury District Council and RSPB.

Further work is planned for 97/98 and subsequent years, working towards rejuvenating the reedbed and providing greater control over water levels. Target species include bittern, a very rare reedbed bird which is a top priority species under the UK's Biodiversity Action Plan (see section 4.4 Biodiversity). It is not expected for the fruits of the planned programme of works to be realised for a few years, although encouragingly at least one bittern was on the site during the 96/97 winter, with up to seven wintering in the Kennet Valley.

The work also has to be carefully undertaken to avoid adverse effects on the population of Desmoulin's Whorl snail (*Vertigo moulinsiana*), for which part of the site has been recently designated as a constituent of the candidate Kennet and Lambourn Floodplain Special Area of Conservation

#### 4.1.5 A34 Newbury Bypass: FD5

The Agency continues to liaise very closely with the consulting engineers and contractors building the Bypass in order to minimise adverse effects resulting from the construction phase as well as to provide mitigation and safeguard for important habitats. Along with English Nature, the Agency attends regular liaison meetings. Sophisticated measures and procedures have been agreed to protect all watercourses from spillages and run-off resulting from the construction (the Bypass crosses over 12 watercourses, 5 of which are SSSI) - to date, the quality of the de-watering discharge and the prevention of damaging spillages has been excellent, although continued close liaison and monitoring is imperative.

The Agency requested that the design of one of the surface water runoff storage ponds be modified to include a sub surface flow reed bed. The Highways Agency were happy to facilitate these works although the Agency bore the cost. This pond will now form part of an ongoing Thames Region, Agency Research and Development project of national significance, to investigate the environmental benefit of sub surface flow systems. Monitoring of this and an associated pond will commence once the road opens in late 1998.

The Highways Agency has agreed to the Agency's request for eleven otter underpasses to be installed along the route, as well as one otter 'ledge', and several large bat boxes are to be incorporated into some of the river bridge crossings. The scheme also necessitated translocation of habitat containing Desmoulin's Whorl Snail, protected under the Habitats Directive, to a site adjacent to the route, along with additional habitat creation to favour the species resulting in a total area of habitat three times the original. Monitoring of the translocated sites and new sites is showing very favourable results, with excellent recruitment of young snails in the translocated habitat in the Lambourn Valley.

#### **4.1.6 Salmon rehabilitation: FC10**

Negotiations with the Millennium Commission were finalised in February and the project to construct 17 fish passes on the River Kennet has the green light to proceed. The programme has been modified so that despite starting in 1997 instead of 1996 as originally planned, completion will still be achieved in the year 2000. The target is now to build 6 passes in both 1997 and 1998 before reverting to the original programme for the final two years.

The estimated total cost of the project is £1.3 million with the Millennium Commission contributing nearly £0.6 million. The Thames Salmon Trust with some help from the Agency, will need to find the remaining £0.7 million.

The first fish ever to be caught in Blakes trap on the River Kennet was a salmon on the 29th August 1997, which was then released upstream of Blakes Weir.

#### **4.1.7 Prosecutions**

During recent months Agency staff have been very successful in court; particular noteworthy cases were:-

- Deans Ltd, Garage Proprietors of Marlborough who pleaded guilty at Devizes Magistrates Court to abstracting water for garage purposes (including use for a car wash) over an extended period without a licence. The company was fined £1000 and ordered to pay £500 costs.
- Discharge of tank cleaning chemical from Lambourn Trout Farm to the River Lambourn at Bagnor causing a number of fish to die. The company pleaded guilty and was fined £3000.
- A leaking pipe on a refuelling system at Husseys bakery caused a discharge of oil to a tributary of the River Enborne at Ashford Hill. The situation was aggravated by an employee tipping floor cleaning liquid down a surface water drain on the same system. The company pleaded guilty and were fined £2000.

#### **4.1.8 Flood Warning**

Irrespective of attempts to minimise the risk of river flooding, it can still occur and, on occasion, represent a risk to property and even human life. Since 1st September 1996 the Agency has taken the lead role in passing flood warnings to people who are at risk, so that they can take action to protect themselves and their property. Flood warnings are issued to the public via the media, such as AA Roadwatch, local radio and teletext and in certain areas via local flood warden schemes. They are also issued to the police, local authorities, emergency services and utility companies. The Agency also provides a national dial and listen telephone service, " Floodcall" which gives local information on places at risk of flooding.

The Kennet catchment has a network of remote sensors that includes twelve river gauges and four rain gauges. The gauges placed so that river levels within high risk areas can be continuously monitored. When river levels rise to a predetermined height the monitoring equipment in the river alerts the flood duty staff, who then assess the situation and if necessary will issue flood warnings. High risk areas include villages along the Lambourn and Winterbourne. Properties at risk have been informed by letter about the Flood Service. The Agency's routine flood defence maintenance work on rivers does reduce the risk of flooding but it must be recognised that a risk still exists due to the overwhelming forces of nature.

#### **4.1.9 Coley and Southcote Meadows**

The Agency objected to the proposed developments at the above site on flooding and conservation grounds. A Public Inquiry was held by Reading Borough Council in February 1997 and the DETR Inspector upheld the Agency's objections and decided against the development.

### **4.2 DISAPPOINTMENTS**

#### **4.2.1 A34 Newbury Bypass: FD5**

Although the Highways Agency increased the design width of four of the bridges crossing SSSI watercourses, under pressure from the Agency and English Nature, this increased width (2 metres both sides of channel) was far short of the widths which the Agency and its predecessor body the NRA has been asking for over many years. Nevertheless, the improved design should go some way to reducing the increased risk of elevated flood levels upstream of the Bypass and in maintaining a little bit of the ecological integrity of the river corridor.

#### **4.2.2 Floodplain maps for River Kennet: FD3**

Lack of calibration information particularly in the Newbury area has resulted in the production of the floodplain maps being severely behind schedule. The floodplain map for the Lower Kennet is substantially complete and it is hoped that the Newbury section will be finalised by the end of the summer 1997. However a delivery date has not yet been confirmed.

On a positive note, once sufficient data has been gathered, the recent acquisition of new computer floodplain mapping facilities, will, following a period of training, allow faster and more efficient production of the maps than the manual methods used previously.

### 4.3 PROGRESS ON OTHER ACTIVITIES

#### 4.3.1 WATER QUALITY PROTECTION

(i) Asset Management Plan AMP2: WQ11

The following STWs are in the AMP2 programme for capital investment which began in April 1995; progress to date is shown below.

Fyfield (Wilts)	Completed	Greenham Common	Under appeal
Hungerford	2001-2005	Kingsclere	2001-2005
Kintbury	Completed	Marlborough	Completed
*Newbury	Completed	Silchester	Under appeal
Washwater	Completed		

TWUL have appealed to the Secretary of State for the Environment, Transport and Regions against the consent conditions imposed by the Agency to Silchester STW.

(ii) Asset Management Plan, AMP3

The Agency has just started planning it's input to TWUL's capital investment programme AMP3. This programme will cover the period from April 2000 to April 2010.

(ii) Water Quality

The Agency uses two principal schemes for the reporting and management of river water quality: the General Quality Assessment (GQA) scheme which allows monitoring of changes in river quality over time and in different areas and the River Quality Objectives (RQOs) scheme which is used to set river quality objectives based on uses. These schemes have replaced the water quality classification scheme previously used by the NRA (the NWC classification). Further details of the new schemes are given in Appendix B. A GQA map of the Kennet catchment, with the GQA determined using the 1994-96 data is given in Fig. 2.

The River Quality Objectives (RQOs) for the Kennet were translated from National Water Council (NWC) classes to River Ecosystem (RE) classes as part of a programme of work linked in with the production of LEAPs. These RQOs are provisional and public comment is welcomed. A table listing the RQOs for the River Kennet is given in Appendix C

The GQA chemical quality of watercourses in the Kennet catchment for 1994-96 is shown in figure 2. It shows that more than three quarters of the reaches are of good quality, the rest being fair. The poorest quality is found downstream of the large STW discharges and on the Kennet and Avon Canal

where the water is slow moving and growth of algae can lead to variable dissolved oxygen levels and high biological oxygen demand. The clean upper reaches and tributaries can be downgraded from A to B because of low dissolved oxygen levels at times of low flow.

\*Longstanding concern amongst local anglers about the quality of Newbury STW effluent led the Agency to arrange a visit to the works. The anglers were given a guided tour by TWUL staff who explained the operational problems they face and made particular reference to the work they had recently carried out (following complaints from anglers) to reduce plastic debris discharged in the final effluent. This work entailed the installation of mesh Copra sacks at the final treatment tanks and storm water outflows to catch the debris.

TWUL intend to install a more permanent solution to the problem during AMP3. The anglers made it clear they intend to lobby for more rapid action. The visit was very constructive and all parties felt communications had been improved.

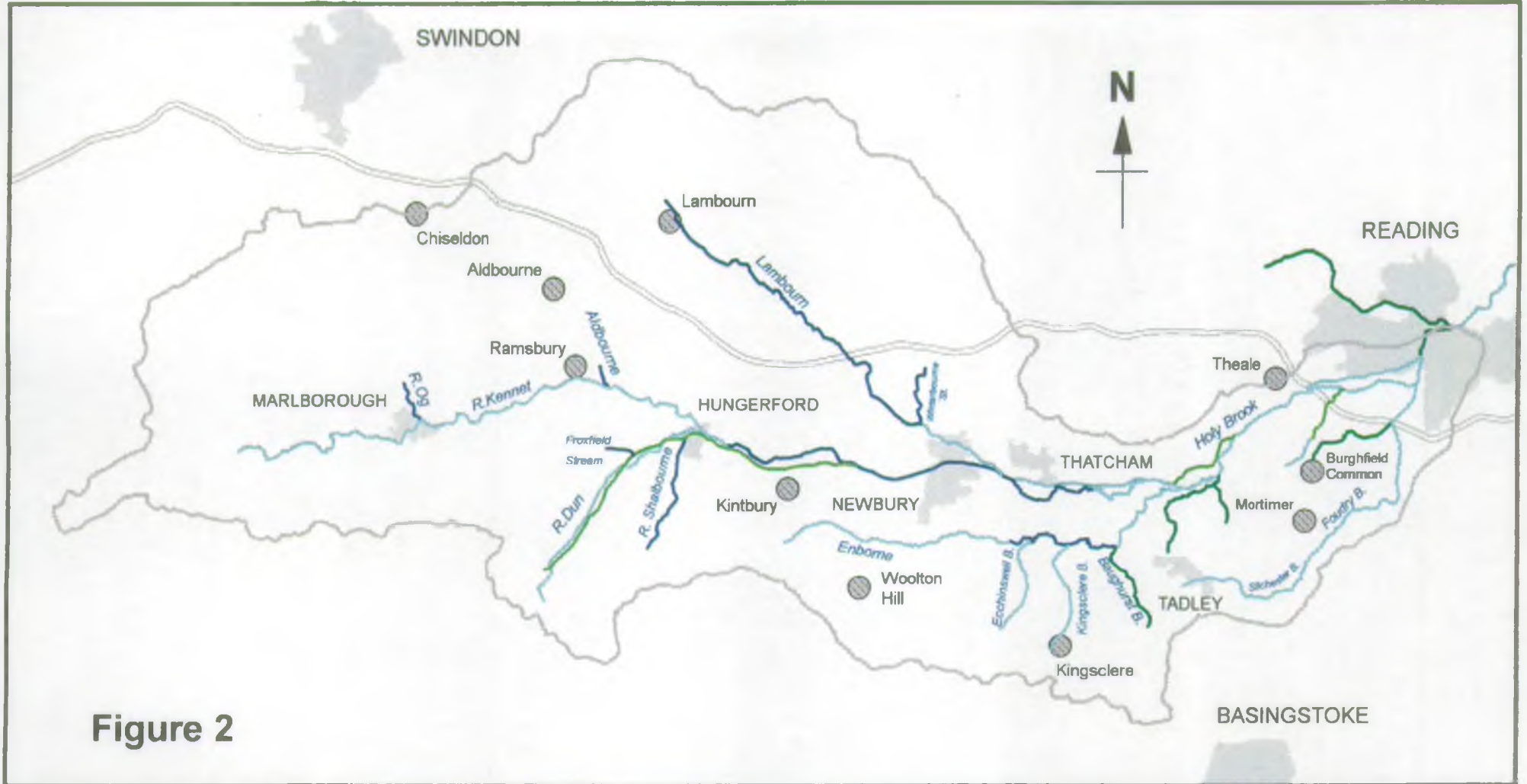



Figure 2

<p><b>KEY</b></p> <p>SCALE</p> <p>0 ————— 10 km</p>		Catchment Boundary	<b>GQA Class (1994-96)</b>			
		M4 Motorway		Class A		Class D
		Urban Area		Class B		Class E
		Town / Village		Class C		Class F



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#### 4.3.2 Biodiversity

From a conservation perspective, one of the most important international agreements to which the UK is a signatory is the Rio Convention on Biological Diversity, which requires that national programmes for the conservation of biological diversity are developed. In 1994, the UK Biodiversity Action Plan was produced by the DoE. Under this Plan, a national group was set up to take this forward and in 1995, produced "Biodiversity: The UK Steering Group Report", which included costed action plans for a short list of 116 of the nation's most threatened and declining species. A middle and long list of priority species for action was also produced. The report also included habitat action plans, which will be the main mechanism for delivering much of the action needed to conserve a wide variety of species.

The Agency has a key role in helping to deliver many of the actions required to meet species and habitat objectives, and has been identified as the lead agency for a number of species (12) and one habitat. Agency action is required to deliver over 50 of the species plans in total.

The Agency (Thames Region) is now in the process of clarifying its role and producing a regional biodiversity action plan in line with national priorities. At the same time, there are many local biodiversity initiatives developing under the auspices of local authorities and voluntary organisations; the Agency is helping to inform this process. It is vital that there are clear links between local plans and the national UK plan.

The Agency's priority is now to clarify its role in the light of the national perspective and to determine how to deliver this at a local level. Future LEAPS and annual reviews of the Kennet catchment will be able to provide more detail on the actions required and progress made on the key species, such as otter, water vole and native crayfish. It is expected that the delivery of the Action Plans from the Agency's point of view will be through the focusing of existing programmes of studies, habitat enhancements and collaborative projects.

Existing initiatives are already addressing issues relating to a number of important species. The Agency - initiated Kennet Otter Habitat Project, a collaboration with the Wiltshire Wildlife Trust, has assessed the catchment for its potential to hold otters and the Project Officer has made valuable contact with landowners to identify important existing habitat and to agree proposed enhancements. In 1996 confirmed evidence was found of otters in the catchment for the first time in over 20 years, although there have been other, unconfirmed, reports in the 90's. The Agency is collating data on the distribution of water voles, crayfish and a variety of other priority invertebrates under the Biodiversity Action Plan, and the developing Conservation Strategy for the two River SSSIs should serve to strengthen and clarify actions required to conserve and enhance the biodiversity of the catchment.


In addition, the Agency's programme of habitat enhancements is designed to restore

habitats, for instance at Thatcham Reedbeds where target species include bittern, and a variety of river narrowing schemes which will benefit species such as trout, grayling and bullhead as well as restore a more naturally self-sustaining river habitat. Other initiatives, such as the Kennet Valley Countryside Project, and proposals from private landowners to restore rivers, all contribute to the conservation and enhancement of biodiversity

#### 4.3.3 Land use planning in the catchment.

A number of Statutory Plans have progressed since the publication of the Final Report. These are detailed in Appendix A.

##### **Thames 21/Sustainability/Thames Environment 21**

 The NRA document "Thames 21 - A Sustainable Strategy and Planning Perspective" was launched during 1995 and is now being updated to "Thames Environment 21". This new strategy provides a framework in which the Agency can address key environmental issues and provides a commitment to all those working in, or with the land use planning system to work in partnership towards the goal of sustainable land use planning. ~~will contribute towards the goal of sustainable land use planning.~~ The document will identify proposed development locations of potentially significant environmental impact: those in the Kennet catchment are discussed below.


##### **Newbury**

**Sandleford Park:** It is proposed that this site, situated to the South of Newbury be developed to allocate a large proportion of Newbury's housing quota into the next century. A maximum of 1,400 - 1,800 houses are proposed for construction by the year 2006.

**Greenham Common:** It is proposed that the former technical area of the military base on the South side of Greenham Common is to be developed for employment generating purposes with some sporting and recreational use.

##### **South West Reading**

**Grazeley:** A new settlement of up to 2,500 houses is proposed at Grazeley, south of the M4. The development would be sited close to the Foudry Brook, a tributary of the Kennet, and the Agency have been involved in the preliminary negotiations of the site.

 **Coley and Southcote Meadows:** These two areas are both to the South West of Reading and to the North of the M4. Coley Meadows is 50 hectares and are proposed to contain 450 dwellings and Southcote 100 hectares and 150 dwellings. The sites fall within the floodplains of the Kennet and the Holy Brook respectively. A large number of gravel pits which are regionally significant for recreation purposes are adjacent to the proposed sites. The Environment Agency has objected to this site on flooding and conservation grounds. A Public Inquiry was held by Reading Borough Council in February 1997 to discuss the proposals and a decision is pending.

## **Berkshire Structure Plan**

The Berkshire Structure Plan sets out the broad planning framework for development in the County and was adopted in November 1995. The level and distribution of housing proved to be the most controversial element of the Structure Plan. The County Council reluctantly had to accept a total of 40,000 dwellings for the period 1991 - 2006 following a direction from the Secretary of State for the Environment. However the Council remains concerned about the environmental consequences of meeting this level of growth.

Following the reorganisation of Local Government in Berkshire in April 1996, the six Unitary Authorities will jointly have the task of reviewing the Structure Plan.

### **4.5.4 Partnerships - Kennet Valley Countryside Project**

The Agency has joined with local authorities, English Nature, voluntary groups, farmers and landowners to support a similar scheme to the highly successful Pang Valley Countryside Project. In essence countryside management is about getting things done on the ground, to care for the countryside and make it accessible to the public. Its aim is to complement planning policies with positive action. The project was set up in the Autumn of 1996 and the Project Officer is Sally Wallington, Tel: 0118 9305335.

## **4.5 DELETIONS**

Four actions have been deleted since the Action plan was first published.

**WR4:** Produce abstraction policy for the Kennet catchment deleted as it is now covered by the Regional Abstraction Licensing policy. However as a result of the SAC and the River SSSI conservation strategy the policy will need to be reassessed.

**CO1,c, and CO2,b:** Form working groups with key participants to review implementation of action plans. Annual progress is being disseminated via published annual review and no forums are planned.

**CO2a:** Six monthly newsletter to participants in Action plan. This was produced once but discontinued as it became very time consuming and resource intensive.

#### 4.6 SUMMARY OF ISSUES

Figure 3 indicates the location of the site specific catchment issues A - H as identified in the Consultation Report:

- A West Berkshire Groundwater Scheme
- B Kennet & Avon Canal: Shalbourne-Dun issue
- C Newbury and Thatcham: Flood risk and development proposals
- D Upper Kennet levels and flows: Axford Licence
- E River Corridor Surveys
- F Kennet and Lambourn proposed Riverine SSSI
- G Thatcham Reed Beds
- H Ogbourne St. George Nitrate Sensitive Area.

Other issues raised in the Consultation Report were:

- \* Water quality protection
- \* Changes in catchment status
- \* Communications

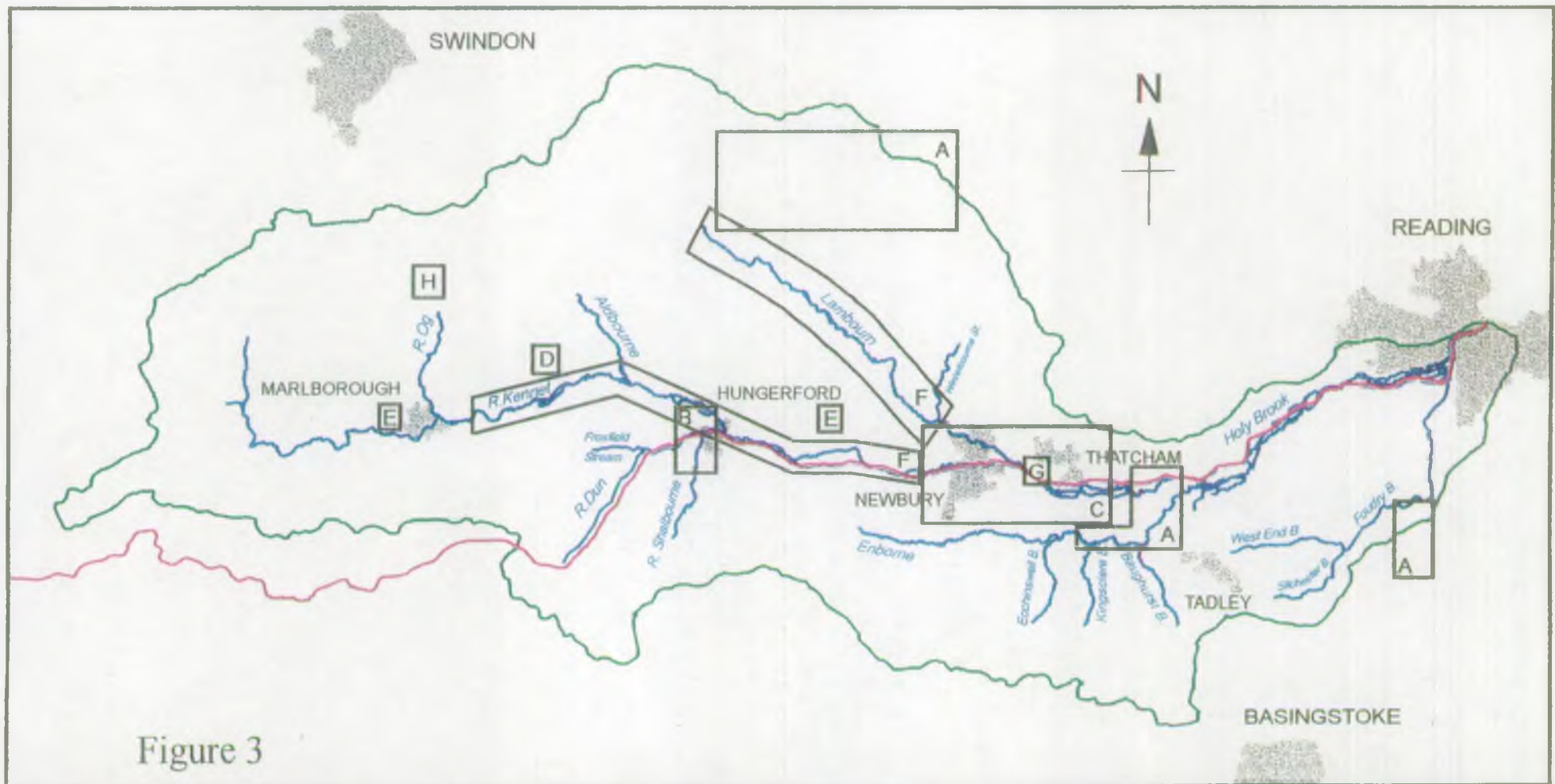



Figure 3

<p><b>KEY</b></p> <p>SCALE</p> <p>0 ——— 10 km</p>		Catchment Boundary		Urban Area
		Main River		
		Kennet and Avon Canal		



ENVIRONMENT AGENCY

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## 5.0 MONITORING REPORT

- 5.1 As most general activities of the Agency relate to sustaining and enhancing the environment as a resource, the working definitions of the activities in the following report have been grouped to reflect this resource element in four different tables.

**Table 1      MONITORING** (describe resource)

Includes: Sampling/survey programmes and any other data collection action, modelling, analysis of data, compiling inventories.

**Table 2      REGULATION & ENFORCEMENT** (safeguard resource)

Includes: Indirect regulation, ie planning consultation.

**Table 3      OPERATIONS** (maintain resource)

Includes: Emergencies, promotion and advisory services.

**Table 4      IMPROVEMENT** (enhance resource)

Includes: Pure enhancement schemes, righting past wrongs.

- 5.2 The text of the tables has been developed from the River Kennet CMP Final Report of April 1994. Those issue-related actions which were programmed for 1994/95 or 95/96 and those which have been commissioned or implemented during 96/97 are included in the following tables. Progress for each action (issue-related or routine) is summarised and where appropriate, the "Nature of Activity/Issue" column also identifies the Final Report's Action Plan Issue Code, eg FC1 on page 23.

- 5.3 The modification of the Action Plan tables has been done mainly to facilitate monitoring of progress associated with ALL FUNCTIONS across the Kennet catchment. It also identifies the potential for harmonised phasing of work and shared resources.

The contact names in the 'Specific Activity' column are Agency staff unless otherwise stated and do not necessarily belong to the "lead" organisation.

TABLE 1: MONITORING

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
<p>1. Water (including groundwater) quality sampling, manual and automatic. Contact : Sheena Engineer/Chris Wheeler</p>	<p>Routine activity in line with national sampling policy for controlled waters &amp; effluent. 5.2.2</p>	<p>Agency TWUL HSE, ADAS, Borough &amp; District Councils</p>	<p>1993/4 - 1998/9</p>	<p>Groundwater monitoring was suspended temporarily during the spring and summer quarters due to resource constraints. However a concerted effort in the Winter quarter ensured that 66% of the samples programmed for 1996/1997 were taken.</p>
<p>2. Biological sampling: invertebrate/ bacteriological, algal, macrophyte sampling. Contact : Alan Tubb</p>	<p>Invertebrate sampling routine activity. Other sampling based around specific surveys. 5.2.2</p>	<p>Agency, Borough &amp; District Councils</p>	<p>1993/4 - 1998/9</p>	<p>Sampling during 1995 indicated the Kennet catchment to be of Very Good and Good biological quality under the General Quality Assessment, although quality declined to Poor at Padworth Street and Bad at Clay Hill Brook.</p> <p>Survey of skins cast off by non biting midge larvae is planned for 1997/98 at Stinchcombe and Chilton Foliat to investigate water quality changes during a drought year. Previous survey results have indicated good water quality at all sites sampled along the Kennet.</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
3. Measurement of rainfall, groundwater levels & river flow, (manually & telemetry). Contact : Cathy Glenny	Routine activity - data collection  5.3.1	Agency	1993/4 -1998/9	On-going.  Gauging stations on the Shalbourne at Hungerford and the Kingsclere Brook at Kingsclere have been completed and operational since February 1997.
4. Computer modelling of flows and groundwater levels helps to increase understanding of hydrological & hydrogeological relationships and thus to enhance assessment of environmental consequences of development proposals. Contact: Vin Robinson	Routine activity - data collection  5.3.5	Agency	1993/4 - 1998/9	On-going.  Model used to assist in provision of evidence for the Axford enquiry.
5. Area specific studies to provide further information for catchment planning purposes. Contact : Ros Deeming / Sheena Engineer	Routine activity on needs basis.  5.8.9	Agency	1993/4 - 1998/9	Greenham Commom:- Investigation and remediation of former oil spillages and leaks is proceeding as runway and associated pavement areas are removed. In addition, similar work has recently started in relation to the removal of the former fuel depots on the site.



SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
<p>6. Continue compiling a comprehensive groundwater quality sampling network by the location of survey points and continuation of sampling programme at identified sites in the catchment.</p> <p>Contact : Sheena Engineer</p>	<p>CMP issue related action (groundwater quality sampling)</p> <p>WQ1</p>	<p>Agency</p>	<p>1993/4 - 1998/9</p>	<p>On-going. Groundwater monitoring regime has been updated to be in line with current Agency National Guidance</p>
<p>7. River corridor surveys (RCS) of the Kennet Catchment.</p> <p>Contact : Graham Scholey</p>	<p>CMP issue related action (Fisheries and Conservation Management - data collection).</p> <p>FC1</p>	<p>Agency, BW, EN</p>	<p>1993/4 - 1998/9</p>	<p>Entire main river has been surveyed.</p>
<p>8. Fisheries survey of the Kennet system incorporating use of new technology (eg hydroacoustics) where appropriate.</p> <p>Contact : John Sutton</p>	<p>CMP issue related action (Fisheries and Conservation Management - fisheries surveys).</p> <p>FC1</p>	<p>Agency</p>	<p>1993/4 - 1998/9</p>	<p>All work completed. Fish populations were generally good, with excellent specimens at some sites. 20 different species were caught. Results demonstrate the importance of habitat and recommendations for enhancement projects have been made. Site specific reports are available on request.</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
<p>9. 60 km of Strategic Landscape Assessment of the River Kennet.</p> <p>Identify landscape issues related to the catchment planning process, develop policies for dealing with them and identifying enhancement opportunities. Share landscape assessment data with NDC and potentially define collaborative projects.</p> <p>Contact : Richard Copas</p>	<p>CMP issue related action (Fisheries and Conservation Management - Landscape Assessments).</p> <p style="text-align: right;">FC1</p>	<p>Agency, Borough and District Councils</p>	<p>1994/5</p>	<p>Final report completed and copies available.</p> <p>Specific opportunities to develop environmental enhancements in partnership with other organisations are welcomed by the Agency.</p>
<p>10. Geomorphological survey of the River Kennet. Through consultation, identify the most appropriate mitigation and enhancement measures for selected reaches. Complete during 1994/95 ie by Quarter 4.</p> <p>Contact : Sue Reed</p>	<p>CMP issue related action (Fisheries and Conservation Management - Geomorphological survey).</p> <p style="text-align: right;">FC1</p>	<p>Agency</p>	<p>1994/5</p>	<p>Survey of the Upper Kennet has been completed (summary report is available). No plans to do other parts of the catchment.</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
<p>11. a. Survey and map the whole system detailing level and flow, control structures by type, size and reaches controlled.  b. Produce proposals for river level and flow monitoring based on the survey work done above.  c. Review conditions of all control structures and prioritise them.  Contact : John Dora</p>	<p>CMP issue related action (Flood Defence - Control structures).  FD2</p>	<p>Agency, BW, Riparian owners</p>	<p>1994/5</p>	<p>a. Survey information is available but it needs to be catalogued and a means of accessing it in a user friendly way established.  b. Thames Region has recently acquired a Geographical Information System which is being evaluated as a possible tool to satisfy these needs.  c. A long term strategy using benefit cost criteria from the Flood Defence Manual will be investigated to aid this process.</p>
<p>12. WQ planning &amp; modelling.  Contact : Simon Bingham &amp; Andrzej Nowosielski</p>	<p>Routine activity, to assess conditions on consent applications.  5.2.3</p>	<p>Agency, DOE, Industry, District &amp; County Councils</p>	<p>1993-1998</p>	<p>RE classes have been determined for the River Kennet.</p>
<p>13. Water resources planning: assess current &amp; future demands.  Contact : Brian Arkell</p>	<p>Routine activity - Water Resources Planning  5.3.4</p>	<p>Agency, Water Companies, Industry</p>	<p>1993/4-1998/9</p>	<p>Continued emphasis on demand management including leakage control.</p>
<p>14. Poor weed growth; investigate the extent of the problem by site inspection, additional sampling and analysis. Make recommendations considering Fisheries and Conservation etc.  Contact : John Sutton</p>	<p>Poor weed growth in the River Kennet below Marlborough STW. (New Issue)  3.5 (v)</p>	<p>Agency, Savernake Flyfishers</p>	<p>1996/7</p>	<p>Agency has initiated a thorough investigation of all possible influences; meanwhile TWUL in recognition of the possible influence of Marlborough STW have agreed, in principle, to a pilot study involving the reduction of phosphate concentrations in the discharge from the STW.</p>

TABLE 2: REGULATION & ENFORCEMENT

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
1. Discharge consenting & charging for discharges. Contact : Chris Wheeler	Routine activity.  5.2.1	Agency (applicant)	1993/4 - 1998/9	On-going activity.
2. Enforcement of pollution control legislation: collection of evidence, follow up legal action, prosecution. Contact : Chris Wheeler	Routine activity.  5.2.5	Agency	1993/4 - 1998/9	Two successful convictions:- causing a fish mortality (£3000 fine), for discharging oil (£2000 fine)
3. Compliance of experimental Nitrate Sensitive Areas (NSA), (eg. Ogbourne St George), establishment of Nitrate Vulnerable Zones (NVZ). Contact : Sheena Engineer	Routine activity, to protect public water supply boreholes from diffuse pollution (by nitrate).  5.2.6	Landowner Agency TWUL MAFF, ADAS	1993/4 - 2000/1	Groundwater monitoring by Agency continues in connection with the MAFF run NSA work. Ogbourne St George has been designated an NVZ and NSA.
4. Enforcement of Agency's policy & practice for the protection of groundwater.	Routine activity.  5.2.7	Agency	1993/4 - 1998/9	On-going activity.
5. Abstraction licensing in order to protect both water quantity & quality. Contact :Geoff Bell	Routine activity - abstraction licensing  5.3.2	Agency		6 new licences have been issued

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
6. Abstraction licence enforcement to ensure compliance with licence conditions. Contact : Cathy Glenny	Routine activity - abstraction licence enforcement 5.3.3	Agency		157 enforcement visits made between April 1996 and April 1997. A contentious prosecution case was successfully resolved on 2nd April 1997 resulting in a fine of £1000 and costs of £500.
7. Development planning: to achieve sustainable use of water resources, and promote Agency interests. Contact : Ros Deeming	Routine activity.  5.3.6	Agency		Continuing to promote Agency policies on sustainable use of water resources into Local Authority Development Plans. Policies on the sustainable use of water resources have been incorporated into Berks Structure Plan and appear in the majority of local plans in the catchment area.
8. Regulation of fisheries through the issuing of consents. Enforcement of rod licences, and fisheries byelaws & consents. Contact : John Sutton	Routine activity. Bailiffing patrols.  5.4.2	Agency UTFC R&DAA	1993/4 - 1998/9	On-going. Final draft of Code of Best Practice ( drawn up by KVFA and Agency) in preparation, progress delayed by operational priorities. 2619 rod licences were inspected between April 1996 and 31st March 1997.

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
<p>9. Regulation of vessels through craft registration and/or licences. Contact : Eileen McKeever</p>	<p>Routine activity, (agency basis for BW).</p>	<p>BW Agency (at Blake's Lock and downstream to Thames)</p>	<p>1993/4 - 1998/9</p>	<p>A change in licensing arrangements between the Agency and BW has resulted in Blakes Lock only being manned two days per week and solely by the Agency.</p>
<p>10. Introduction and enforcement of Boat Safety Scheme. Contact : Eileen McKeever</p>	<p>Introduction January 1997, ongoing routine activity</p>	<p>Agency/BW</p>	<p>1997 -</p>	<p>National Boat Safety Scheme is proving very successful and has been well accepted amongst boat users. Figures for individual watercourses are not available but on the inland waterways controlled by BW 10,000 applications were received and only 26 applications did not contain the correct paper work, indicating that the National Boat Safety Pack had been well understood. 8500 applications were received for the Thames.</p>
<p>11. Land Drainage consents to primarily prevent flooding. Contact : Ian Tiller</p>	<p>Routine activity. 5.8.3</p>			<p>On going activity.</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
<p>12. The Agency was concerned that the A34 Newbury By-pass would pose a threat of increased flood risk and possible adverse ecological impact (see 4.1.5)</p> <p>Contact : Barry Winter and Graham Scholey</p>	<p>CMP issue related action (Flood Defence - A34 Newbury By-pass).</p> <p style="text-align: right;">FD5</p>	<p>Agency NDC, HA</p>	<p>1994/5 - 1995/6</p>	<p>Construction programme underway with a view to completion in late 1998. Some bridge designs were revised following Agency and English Nature concerns. This will help to overcome additional risks of floods caused by the bypass and reduce impact on the SSSIs in the Kennet and Lambourn valleys. The majority of surface water runoff from the road is being discharged via oil interceptors and balancing ponds planted as reed beds to improve water quality. A storage pond is to be modified to include a sub surface flow reed bed as part of an on going Agency R &amp; D project to determine which system benefits the water environment most and is most cost effective.</p>
<p>13. Determination of Axford Licence variation and establishment of flow constraint on River Kennet.</p> <p>Contact : Mike Owen</p>	<p>CMP issue related action (Water Resources - Upper Kennet River Levels).</p> <p style="text-align: right;">WR1b</p>	<p>Agency TWUL</p>	<p>1994/5 - 1995/6</p>	<p>Public Inquiry began 15th October 1996 and finished on 28th November 1996 with a formal site inspection. The final decision is awaited.</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participants)	PROGRAMME	PROGRESS/COMMENTS
<p>14. Increase uptake (by local authorities) of model land use statements to enhance the water environment. Contact : Ros Deeming</p>	<p>Routine activity</p>	<p>Agency County and District councils</p>	<p>1993/4 - 1998/9</p>	<p>Agency representations well received by all local authorities in the catchment area with an 85% uptake of Agency policies in statutory development plans</p>
<p>15. Ensure, through liaison and representations to local authorities, that sustainable use of water resources is achieved, Agency's interests are safeguarded and environmental enhancements identified where appropriate. New Action. Contact : Ros Deeming</p>	<p>There is a need to ensure that the numbers of houses and the locations identified in the Berkshire Structure Plan and District Local Plans are sustainable 3.10 (ii)</p>	<p>Agency County and local councils</p>	<p>1996/7 - 1998/9</p>	<p>The Agency actively promotes the input of Agency policies into development plans. The Agency recently objected to housing development proposed in the Kennet Valley at the Reading Borough Local Plan Inquiry in February 1997. Decision awaited.</p>



TABLE 3: OPERATIONS

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
1. Provide access to Public Register. Contact : Nicki Atkins	Routine activity. Stat. duty, WR Act 91. WQ2	Agency	1993/4 - 1998/99	A National leaflet entitled, " Guide to information available to the public", was published in December 1996. As a region, Thames receives around 350 public register requests (relating to discharges to controlled waters, water quality and abstractions) a month.
2. Pollution prevention visits: identify & educate potential polluters. Contact : Chris Wheeler/Bob Jeffery	Routine activity. WQ10	Agency Industry, Farmers		Ongoing eg. Hambridge Lane and Hambridge Road Industrial Estates of Newbury were targeted for pollution prevention visits and approximately 200 visits were carried out between October 1996 and May 1997
3. Continue programme of pollution prevention campaigns and complete Foudry Brook farming and industrial areas and Enbourne and tributaries farming areas. Contact : Chris Wheeler/Sarah Davies	CMP Issue related action (Water Quality - pollution prevention) WQ7	Agency District & County Councils, TWUL, Industry, Farmers, EN MAFF/ADAS	1993/4 - 1998/9	Completed

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
4. Emergency response service (24hr) to reported incidents of pollution to minimise impact of pollution on the environment. Contact : Chris Wheeler	Routine activity. Respond to published standards of service.  5.2.9	Agency Emergency services	1993/4 - 1998/9	On-going activity. Almost 200 incidents were reported and investigated between August 1996 and June 1997.
5. Provide data & advice to further education & understanding of the water environment by others, eg water companies, public. Contact : Chris Wheeler	Routine activity. Includes site visits.  5.2.8	Agency		On-going activity eg. induction courses in pollution prevention given to some of the workforce constructing the Newbury Bypass. Approximately 15 school visits within the catchment have been carried out. Agency staff manned a stall at the National Waste Minimisation Roadshow held at Newbury Racecourse. Participation in Globe- Go Local on a better environment.
6. Emergency response service for fish rescues to prevent or limit losses of fish. Contact : John Sutton	Routine activity. Published standards of service. 5.4.1	Agency Fishery owners	1993/4 - 1998/9	On-going eg. a number of fish rescues were carried out on the Mill stream and tributaries of the Lambourn as a result of low flows during the spring and summer months.

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
7. Provide appropriate land drainage, alleviate flooding, whilst ensuring full protection or mitigation of damage to fisheries and other wildlife habitats. Contact : John Dora	Routine activity: watercourse maintenance programme, including aquatic plant management & dredging & bank trimming. 5.5.2	Agency Riparian owners	1993/4 - 1998/9	Internal review of achievement of environmentally sensitive standards underway, with adoption of revised guidelines planned for summer 1997.
8. Emergency response service (24hr) to reported incidents of flooding to protect people & property, including flood warning. Contact : John Dora	Routine activity. 5.5.5	Agency	1993/4 - 1998/9	On-going activity as and when required. Installing and configuring several river level monitoring sites which are linked to a central computer at Wallingford, and will enable more effective operational responses to flooding.
9. River control: identify responsibility for operation & maintenance of control structures. Contact : John Dora	Routine activity. Agency has powers to supervise riparian owners. 5.5.4	Agency Riparian owners	1993/4 - 1998/9	On-going activity
10. Maintain facilities for navigation & general public, eg locks, moorings, footbridges, siles etc. Contact : Eileen McKeever	Routine activity.	Agency/BW Riparian owners District & County Councils	1993/4 - 1998/9	General maintenance work carried out by Agency on those stretches where it is the navigation authority ie from Highbridge in Reading to the Thames

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
11. Assess the feasibility of combining the hazardous chemical lists of, HSE, County Councils, CIMAH, BASIS and the fire brigade into a single database and collation of local data on hazardous sites. Contact : Chris Wheeler	CMP issue related action (water quality - use and storage of chemicals). WQ4	Agency, County Councils, HSE	1993/4 - 1998/9	Through liaison with Local Authorities and HSE the Agency is working to establish the location of all hazardous sites and if need be appropriate strategies for dealing with them in an emergency.
12. Investigate cause of the problems of turbid water entering R Dun from canal and identify solutions. Contact : John Sutton	CMP issue related action (Water Quality - River Dun/Shalborne/canal confluence area). WQ8	Agency EN, BW, Riparian Owner, BBONT, Hungerford Town and Manor	1994/5 - 1995/6	Reedbed system constructed to trap suspended solids. Maintenance schedule has been agreed and the project signed off. Reed growth has become quickly established and early results look promising. Reports of improved water quality have been received from local residents.
13. The support of designation of part of the Rivers Kennet and Lambourn as a SSSI. Ensure all internal operations are in sympathy with the high nature conservation value of the catchment and advise and promote the sensitive management of this valuable resource. Contact : Graham Scholey	CMP issue related action (Fisheries and Conservation Management - maintaining the high ecological value of the catchment). FC2	EN Agency, Riparian Owners, BW, KVFA, Wildlife Trusts	1994/5 - 1995/6	Rivers Kennet and Lambourn are now fully notified as two separate SSSIs (all of the Lambourn and part of the Kennet). A consenting protocol between EN and the Agency is almost complete. The conservation strategy for both rivers is now underway and should be produced by end of 1997.

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
<p>14. Thatcham Reed Beds SSSI: Instigate an investigation into the problem and recommend actions, ie, habitat management programme, repair and refurbishment of control structures, etc. Contact : John Sutton</p>	<p>CMP issue related action (Fisheries and Conservation - Habitat management at Thatcham Reed Beds SSSI). FC3</p>	<p>RSPB, EN Agency, NDC</p>	<p>1994/5 - 1995/</p>	<p>Management plan produced by RSPB. WLMP completed for the steering group. Enhancement works, involving the installation of a sluice and excavation of new ditches have been carried out in accordance with the Management Plan and WLMP. Further work is planned to rejuvenate the reedbeds.</p>
<p>15. Continue (and improve as necessary) sympathetic and sensitive canal and river maintenance for navigation and flood defence purposes. Contact : John Dora/David Berezynskij (BW)</p>	<p>CMP issue related action (Flood Defence - maintenance and conservation conflict). FD4</p>	<p>BW, Agency EN</p>	<p>1994/5 - 1998/9</p>	<p>This is a continuing process with well defined procedures for the Agency which BW may be interested in.</p>
<p>16. Assess PHABSIM as a means to set prescribed flow (for Axford licence) to protect environmental needs. Contact : Cathy Glenny</p>	<p>CMP issue related action (Water Resources - Upper Kennet River Levels and Flows). WR1a</p>	<p>Agency</p>	<p>1993/4 - 1994/5</p>	<p>Completed. Output data used to help determine licence.</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
<p>17. Assess need and potential to develop new groundwater resources in the Middle and Lower Kennet.</p> <p>Use of Agency in-house groundwater and habitat models to assess effects of abstraction and the potential for further development.</p> <p>Contact : Brian Arkell</p>	<p>CMP issue related action (Water Resources - increases in demand due to Structure Plan proposals).</p> <p>WR3a</p>	<p>Agency TWUL, NDC</p>	<p>1993/4 - 1997/8</p>	<p>East Woodhay licence renewed for 10 years in December 1996.</p> <p>No specific work on water supply for new developments has been undertaken.</p>
<p>18. Investigation by TWUL of emergency support for Reading Water Supply; from chalk aquifer at Fobney, Thames-side groundwater or river.</p> <p>Test pumping and other work is ongoing</p> <p>Contact : Brian Arkell/Vin Robinson</p>	<p>CMP issue related action (Water Resources - increases in demand on water resources).</p> <p>WR3c</p>	<p>TWUL Agency</p>	<p>1995/6 - 1996/7</p>	<p>8 boreholes have now been drilled at Fobney and have been pump tested as a group. Application for an abstraction licence is now imminent.</p>
<p>19. Evaluate water supply needs of the canal (for navigation), resources availability, distribution and limits of operation. Investigate ways of optimising water usage. Continue liaison with relevant parties.</p> <p>Contact : Brian Hughes</p>	<p>CMP issue related action (Water Resources - Kennet &amp; Avon Canal).</p> <p>WR7</p>	<p>BW, Agency, Kennet &amp; Avon Canal Trust, Riparian Owners</p>	<p>1993/4 - 1998/9</p>	<p><i>Info pending</i></p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
<p>20. Ingress of groundwater to sewers reduces their capacity to carry sewage and is the direct cause of flooding in some areas: Undertake liaison to identify critical problem areas and repair programme. Contact : Chris Wheeler</p>	<p>CMP issue related action (Water Quality - ingress of groundwater to sewers).  WQ6</p>	<p>TWUL Borough &amp; District Councils, Agency</p>	<p>1993/4 - 1998/9</p>	<p>A programme of sewer sealing has continued to prevent ingress of groundwater into foul sewers. Newbury D.C have completed schemes in Upper Lambourn, Lambourn. Great Shefford, Weston, Winterbourne, Brimpton and Burghfield Common. Further investigations to be made in Ramsbury area to see if more sealing is required. This action is now to be carried out by TWUL rather than the councils</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
<p>21. Development control in the floodplain by local authorities. Continue mathematical modelling to determine the extent of the floodplains of the Rivers Kennet and Lambourn in the Newbury and Thatcham area. Continue monitoring of water levels, flow and gate operation to assist with calibration of hydraulic model.</p> <p>Contact : Barry Winter</p>	<p>CMP issue related action (Flood Defence - increased risk of flooding in Newbury and Thatcham).</p> <p style="text-align: right;">FD1</p>	<p>Agency District &amp; County Councils, Riparian Owners</p>	<p>1994/5 - 1998/9</p>	<p>Suitable policy statements for floodplain protection have been included in most statutory development plans. The need for a short document to back up Agency objections to development in the floodplain has been accommodated within the National floodplain policy document, launched in March 1997 and is available on request.</p> <p>Mathematical modelling has progressed, but technical difficulties are proving time-consuming and expensive to overcome. Delivery date for floodplain maps not yet been confirmed, however the Lower Kennet is substantially complete and the Newbury section should be finalised by the end of the summer.</p>
<p>22. Management of complex control structures in the Newbury area in order to reduce potential risk of flooding.</p> <p>Contact : John Dora</p>	<p>CMP issue related action (Flood Defence - management of river structures).</p> <p style="text-align: right;">FD3</p>	<p>Agency District &amp; County Councils, Riparian owners</p>	<p>1994/5 - 1998/9</p>	<p>Good progress is being made by BW in formulating proposals for the Newbury area. All structures are under riparian or BW control, with various operational agreements between BW and owners.</p>



SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
<p>23. Litter on the Kennet and Avon Canal especially on the bank: Improve public awareness and education. Contact : Kate Vincent and Simon Bevan</p>	<p>CMP issue related action (Water Quality - Litter). WQ9</p>	<p>NDC, RBC, KDC, BW, Agency, CKC, Riparian owners</p>	<p>1993/4 - 1998/9</p>	<p>RESCUE event took place in March on the Thames through Reading and on the Kennet from Kintbury to the Thames confluence. 500 volunteers collected over 55 tonnes of rubbish eg. shopping trolleys, bicycles and thousands of aluminium cans and plastic bottles.</p>
<p>24. Make positive use of existing groups and fora to:</p> <ul style="list-style-type: none"> <li>- help the Agency achieve its coordinating role,</li> <li>- report incidents promptly,</li> <li>- promote monitor, audit and review actions.</li> </ul> <p>Raise awareness and communicate the importance of implementing the Action Plans by key participants. Contact : Chris Wheeler, Jamal A Hamid</p>	<p>CMP issue related action (Communications - effective coordination of debating local concerns and issues). CO1</p>	<p>Agency County &amp; Local Councils, Riparian owners, Interest groups</p>	<p>1994/5 - 1998/9</p>	<p>Agency staff deal with multifunctional enquiries, review progress and publish results. Talks given to colleges and universities. Participation in Reading Waterways Forum and Kennet clean-up activities. Good liaison between EN and Agency on pollution incidents.</p>

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
<p>26 Investigate ways of improving awareness of Agency and its duties through effective communication to external interested parties, ie, "the public". Contact : Kate Vincent</p>	<p>CMP issue related action (Communications).  C02</p>	<p>Agency</p>		<p>Customer Services and other Agency staff are very active with press releases, talks, shows, educational visits eg. Agency advertisement placed in numerous local publications, listing the work of the Agency and useful telephone numbers, eg. pollution incident hotline 0800 807060. Agency and Oxfordshire CC are jointly producing an "Environmental Who Does What" Leaflet for distribution in the Autumn. A "design a poster" competition for school children with an aim to make young people more aware of their responsibilities towards protecting the environment for future generations was launched in June 1997.</p>

TABLE 4: IMPROVEMENT

SPECIFIC ACTIVITY	NATURE OF ACTIVITY/ISSUE	LEAD RESPONSIBILITY (and participant)	PROGRAMME	PROGRESS/COMMENTS
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<p>1. Planned enhancement projects as identified by Fisheries and Conservation/Flood Defence Habitat Enhancement Programme. Contact :Graham Scholey</p>	<p>Routine activity.  5.4.3</p>	<p>Agency Riparian owners, EN, County &amp; District Councils</p>	<p>1993/4 - 1998/9</p>	<p>Channel narrowing work on the River Lambourn at Easton is completed.</p> <p>Project to protect over 1km of the River Og at Marlborough from damage by livestock and to promote buffer zone creation completed. This project will encourage diversity of bankside flora and fauna whilst protecting important gravel spawning areas for wild brown trout.</p> <p>Continuation of gravel spawning enhancements at key sites.</p> <p>Much enhancement achieved through flood defence funding and during routine river maintenance works.</p> <p>Major habitat enhancement work is being undertaken at Thatcham Reedbeds SSSI (see 4.1.4)</p>
<p>2. Promote the recreational use of water and associated land &amp; encourage public access, primarily through joint ventures. Contact : Eileen McKeever</p>	<p>Routine activity to enhance amenity value of water environment. Benefits local community. 5.7.7</p>	<p>Agency, BW CoCo, Riparian Owners, District &amp; County Councils</p>	<p>1993/4 - 1998/9</p>	<p>From 1 April 1996, Agency agree to recognise BCU membership as a valid canoe licence in Anglian and Southern Regions. Discussions are still ongoing in Thames Region.</p>
<p>3. Promote improvements in water environment in Minerals Plans: encourage wetland habitat &amp; landscape enhancements as part of "after use plans". Contact : Ros Deeming</p>	<p>Routine activity.  5.8.6</p>	<p>Agency County and Local Councils</p>	<p>1993/4 - 1998/9</p>	<p>Most councils have detailed policies on 'after use'.</p>

<p>4. Look to promote and initiate an otter habitat project. Aim to assess suitability of the catchment for otters by investigating habitat, prey populations and the levels of toxic pollutants ie through fish tissue analysis. Contact : Graham Scholey</p>	<p>CMP issue related action (Fisheries and Conservation - recovery of an Otter population).  FCS</p>	<p>Agency WWT, BBONT, KVFA, EN, Riparian Owners, County Council</p>	<p>1994/5 - 1998/9</p>	<p>WWT Project officer's final report has been produced, confirming the excellent potential of the catchment for otters and including recommendations for enhancement on parts of the catchment with poorer habit. The Agency hopes to begin implementing enhancement in 1998/99 in conjunction with landowners</p>
<p>5. Re-establish a substantially self-sustaining run of salmon. Programmed stocking of juvenile salmon into the Rivers Kennet and Lambourn. Contact : John Sutton</p>	<p>CMP issue related action (Fisheries and Conservation - Salmon rehabilitation).  FC10</p>	<p>Agency TST, KVFA, Riparian Owners</p>	<p>1994/5 - 1998/9</p>	<p>60,000 smolts were stocked to the River Kennet in March 1997 and 100,000 fry stocked in June 1997. Project to construct 17 fish passes was approved in February. 6 passes to be built in 1997.</p>
<p>6. West Berkshire Groundwater Scheme Sites: Removal of unsightly disused radio masts. Commission grass cutting regimes. General site clearance and tidying up. Contact : Tony Scott</p>	<p>Routine activity  5.3.7</p>	<p>Agency TWUL</p>	<p>1994/5 - 1995/6</p>	<p>5 of the 30 masts still to be removed, delayed due to budgetary constraints.  <i>Work being done to repair pipeline leaks found during pumping tests. ( should this go under Table 3, 18?? Tony)</i>  <i>Brian Arkell:- can you supply some info on the future of the scheme? Thanks</i></p>

<p>7. Environmental impact of increased boat traffic on physical habitat of Kennet &amp; Avon Canal: Take appropriate opportunities for enhancement when doing maintenance works eg soft bank revetment, off channel refuges for invertebrates and fry, planting etc. Contact : John Sutton</p>	<p>CMP issue related action (Fisheries and Conservation - Kennet &amp; Avon canal, impact of increased boat traffic).  FC8</p>	<p>BW Agency</p>	<p>1993/4 - 1998/9</p>	<p>The Agency has considerable experience of habitat enhancement schemes and is keen to share this experience with BW.</p>
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**FUTURE REVIEWS**

- 6.0 In order to successfully progress the accelerated national programme for the production of LEAPs, the publication of the next Kennet CMP Annual Review will now be replaced by a LEAP Consultation Report for the Kennet catchment. This is timely as the Consultation Report for the River Kennet CMP was produced in March 1993 and therefore it should be given a five year cycle for a full plan review.

The LEAP Consultation Report will take account of the Agency's interests in air, water and land and it is expected to be published in September 1998.

**Thank you for your interest in the River Kennet catchment. As this Review shows, the Agency and others have made considerable progress towards addressing the issues and implementing and implementing the actions listed in the Action plans. The Agency expects this work to continue in the future.**

**PLEASE LET US KNOW YOUR VIEWS AND YOUR ACTIVITIES.**

*Note: This is not a legally or scientifically binding document. It is written both for wide public appreciation and for information.*

APPENDICES

APPENDIX A

Land use planning in the catchment

Since the River Kennet CMP Final Report was published in April 1994, no major changes have been noted which require either the vision or the strategies described in the Final Report to be amended. A number of statutory land use plans have been progressed by local authorities and the current situation is summarised below:

- Structure Plans**      **Berkshire to year 2006** : Adopted in November 1995 following a High Court decision in Council's favour. Covers the Agency's interests adequately.  
**Wiltshire**: Single Replacement Plan Deposit Draft issued August 1996. Examination in Public held Feb/March 97.  
**Hampshire**: Examination in Public held 96. Panel Report issued May 97.  
**Oxfordshire**: Structure Plan 2011; Deposit Draft November 1996, Examination in Public completed during July 1997.
- Minerals Plans**      **Berkshire to year 2006** : Adopted November 95. Incorporates EA's views on the restoration of sites.  
**Wiltshire**: Public Consultation Draft published Sept 1994. Deposit expected late 97.  
**Hampshire**: Minerals plan recently gone through Public Inquiry. Inspectors report expected soon.  
**Oxfordshire Minerals & Waste Plan** : Public Inquiry held summer 1994. Adopted July 96.
- Waste Plans**      **Berkshire**: Inquiry on Waste Plan finished in April 96. Adoption expected early 98.  
**Wiltshire**: Waste Strategy published March 1996.  
**Hampshire**: Waste Plan recently finished Public Inquiry. Inspectors report expected.  
**Oxfordshire** : See Minerals & Waste Plan above.
- District Plans**      **Newbury DC**: Deposit Draft of Local Plan Review 1991 - 2006 issued September 1996. Public Inquiry to be held in September 97.  
**Reading BC**: Modifications issued March 1996. Public Inquiry on additional issues held in Feb 97, where proposed developments at Coley and Southcote Meadows were dismissed.  
**Wokingham DC**: Public Consultation Draft April 1995, expecting Deposit Draft June 97.  
**Kennet DC**: Local Plan Adopted March 97. Covers the Agency's interests adequately  
**North Wilts DC**: Public Inquiry held July 96. Inspectors report expected late 97.  
**Thamesdown BC (now Swindon BC)**: Public Inquiry finished in March 96.

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Inspectors report published April 97.

**Basingstoke & Deane BC:** Adopted Plan and now starting review.

**Vale of White Horse DC:** Inquiry finished April 97. Inspectors report expected end of 97.



## APPENDIX B

### General Quality Assessment (GQA)

The General Quality Assessment (GQA) scheme is used to make regular assessments of the quality of rivers *to monitor trends over time and to compare rivers in different areas. Four components are being developed for the GQA assessment - general chemistry, nutrients, aesthetics and biology - each providing a discrete "window" on the quality of the river stretches. The general chemistry component of the GQA is now in use. It is made up of six grades (A to F) defined by standards for Dissolved Oxygen, BOD and Total Ammonia. The biological component is based on groups of macroinvertebrates (small animals including mayfly nymphs, snails, shrimps and worms) that are found on the river bed.* The GQA classes vary from A (very good) to F (bad) with lower case letters differentiating the classes. The nutrient and aesthetic components are still under development and may be introduced at a later stage.

### River Quality Objectives

The River Quality Objective (RQO) scheme, establishes quality targets based on the uses of the watercourse, to provide a commonly agreed planning framework for regulatory bodies and dischargers. The proposed RQO scheme is based upon the recognised uses to which a river stretch may be put. These uses could eventually include: River Ecosystem; Special Ecosystem; Abstraction for Potable Supply; Agricultural Abstraction; and Watersports. The standards defining the five River Ecosystem (RE) use classes, which address the chemical quality requirements of different types of aquatic ecosystems, were introduced by the Surface Waters (River Ecosystem)(Classification) Regulations 1994. Standards for further uses are still under development. For each stretch of river, an RE class RQO will be assigned, including a date by which this level of water quality should be achieved. Until RQOs are formally established by legal notice served by the Secretary of State, and therefore exist on a statutory basis, they will be applied on a non-statutory basis.

*The statutory scheme will require public consultation. These objectives are to assist the Environment Agency in planning work until they become statutory. Since the system is new, several of the objectives may need to be reset as further information on the watercourses is gathered. This will be done over the next few years before statutory objectives are implemented. Once the objectives become statutory the Environment Agency will review them at least once every five years.*

**Table 1: Descriptions of the River Ecosystem Classes**

Class RE1	Water of very good quality suitable for all fish species
Class RE2	Water of good quality suitable for all fish species
Class RE3	Water of fair quality suitable for high class coarse fish populations
Class RE4	Water of fair quality suitable for coarse fish populations
Class RE5	Water of poor quality which is likely to limit coarse fish populations
Unclassified	Water of bad quality in which fish are unlikely to be present or insufficient data available by which to classify water quality

The new River Ecosystem classes have been used to set river quality objectives for the Kennet catchment and the proposed objectives are given in Appendix C and shown on Figure 2, page 13. The river quality objectives have been set taking into account current and future uses of the watercourses in this area. The compliance of watercourse reaches with their objectives is judged against a rolling three calendar year period.

**The RQO scheme also allows for long-term objectives. These are objectives which we hope to attained beyond 2005. In order to set long-term objectives it is important to determine the need for further water quality improvements within the Kennet catchment. A public view on the required uses for a watercourse would be valued (e.g if a river does not currently support a fishery and the public feels it should support a cyprinid fishery the Agency should be informed).**

**Water quality improvements cost money and in many cases it is the public who pay the bill for these improvements either directly or indirectly. So it is important to relate the cost of any proposed improvements to their benefits when deciding on whether or not individual schemes should go ahead. Cost benefit analyses will be used in helping to assign priorities for improvement schemes.**

## Appendix C River Quality Objectives for the Kennet Catchment

RIVER	REACH	SHORT-TERM RQO	RQO COMPLIANCE 1994-96
ALDBOURNE	Whittonditch - Kennet	RE2	PASS
ALDERSHOT STREAM	Source - Kennet	RE2	PASS
BAUGHURST BROOK	Pound Green - Enborne	RE3	MARGINAL
BURGHFIELD BROOK	Burghfield Common - Foudry Brook	RE3	PASS
CLAY HILL BROOK	Sulhamstead Green - Burghfield STW	RE2	PASS
CLAY HILL BROOK	Burghfield STW - Kennet	RE5	PASS
DUN	East Grafton - Kennet	RE1	MARGINAL
ECCHINSWELL BROOK	Ecchinswell - Enborne	RE2	PASS
ENBORNE	West Woodhay - Bishops Green STW	RE2	PASS
ENBORNE	Bishops Green STW - Baughurst Brook	RE1	PASS
ENBORNE	Baughurst Brook - Kennet	RE2	PASS
FISHERMANS BROOK	Source - Padworth Stream	RE3	PASS
FOUDRY BROOK	Devil's Highway - Stratfild Mortimer STW	RE2	PASS
FOUDRY BROOK	Stratfield Mortimer STW - Kennet	RE2	PASS
FROXFIELD STREAM	Froxfield - Dun	RE1	PASS
HOLY BROOK	Kennet - Kennet	RE1	MARGINAL
KENNET	West Kennet - Marlborough STW	RE2	PASS
KENNET	Marlborough STW - Stitcomb Mill	RE2	PASS
KENNET	Stitcomb Mill - Hungerford STW	RE1	MARGINAL
KENNET	Hungerford STW - Newbury STW	RE1	PASS
KENNET	Newbury STW - Aldershot Stream	RE1	PASS
KENNET	Aldershot Stream - Enborne	RE1	MARGINAL
KENNET	Enborne - Sulhamstead Stream	RE1	MARGINAL
KENNET	Sulhamstead Stream - Foudry Brook	RE1	MARGINAL
KENNET	Foudry Brook - Holy Brook	RE2	PASS
KENNET	Holy Brook - Thames	RE3	PASS
KENNET AND AVON CANAL	Crofton - Kintbury	RE3	MARGINAL
KENNET AND AVON CANAL	Widmead Lock - Woolhampton	RE2	PASS
KENNET AND AVON CANAL	Woolhampton - Ufton	RE2	MARGINAL
KINGSCLERE BROOK	Kingsclere - Enborne	RE2	PASS
LAMBOURN	Lambourn - Boxford STW	RE1	PASS
LAMBOURN	Boxford STW - Lambourn FFM	RE1	PASS
LAMBOURN	Lambourn FFM - Kennet	RE2	PASS
OG	Bay Bridge - Kennet	RE2	PASS
PADWORTH STREAM	Old Warren - Kennet	RE2	MARGINAL
SHALBOURNE STREAM	Shalbourne - Dun	RE1	PASS
SILCHESTER BROOK	Tadley - Silchester STW	RE2	PASS
SILCHESTER BROOK	Silchester STW - Foudry Brook	RE3	PASS
WINTERBOURNE	Winterbourne - Bagnor Stream	RE1	PASS

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### APPENDIX D

#### Contact Telephone Numbers

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Mike Owen	0118 9535304
Sue Reid	0118 9535714
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Sally Wallington (Kennet Valley Countryside Project)	0118 9305335

APPENDIX E

GLOSSARY AND ABBREVIATIONS

<i>Abstraction</i>	Removal of water from surface or groundwater, usually by pumping.
<i>Abstraction Licence</i>	Licence issued by the Agency under Section 38 of the Water Resources Act 1991 to permit water to be abstracted. The maximum abstraction rates are specified in the licence.
<i>ALF</i>	Alleviation of Low Flows
<i>AMP</i>	TWUL's Asset Management Plan
<i>AOD</i>	Above Ordnance Datum
<i>AONB</i>	Area of Outstanding Natural Beauty
<i>BASIS</i>	British Agrochemical Safety Inspection Scheme
<i>BCU</i>	British Canoe Union
<i>Biodiversity</i>	A mixture of habitats and species which increase the ecological value of a site.
<i>BW</i>	British Waterways
<i>Catchment</i>	Area from which river systems, lakes and reservoirs collect water.
<i>CIMAH</i>	Control of Industrial , Major, Accident and Hazard Regulations.
<i>CLC</i>	Cleaner Kennet Campaign
<i>CMP</i>	Catchment Management Plan - integrated plan for the catchment which covers all functions of the NRA. These provided the strategy by which the catchment would be managed. To be replaced by LEAPs (Local Environment Agency Plans) which will cover all functions of the Environment Agency.
<i>CoCo</i>	Countryside Commission
<i>COSHH</i>	Control of Substances Hazardous to Health Regulations
<i>Confluence</i>	The point at which two rivers meet.
<i>Consent</i>	The statutory document issued by the Agency under schedule 10 of the Water Resources Act 1991 to indicate any limits and conditions on the discharge of an effluent to a controlled water.
<i>County Structure</i>	Statutory document produced by County Councils outlining their strategy for

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<i>Plans</i>	development over a 10-15 year timescale.
<i>Cross Functional plans</i>	The NRA/Agency produced plans which set out planned actions for the coming year based on the functional elements of CMPs or LEAPs. The available resources for the year in question and the relative priorities of the actions are both taken into account.
<i>Cyprinid</i>	Coarse fish of the carp family, ie roach, dace, bream.
<i>District Local Plan</i>	Statutory document produced by District or Borough Councils to implement the development strategy set out in County Structure Plans. Specific land use allocations are identified.
<i>DoE</i>	Department of the Environment
<i>EA</i>	Environmental Assessment
<i>EC</i>	European Community
<i>EN</i>	English Nature
<i>ESA</i>	Environmentally Sensitive Area
<i>FDMM</i>	Flood Defence Management Manual
<i>FDMS</i>	Flood Defence Management System
<i>Floodplain</i>	This includes all land (and washlands) adjacent to a watercourse over which water flows or (would flow but for flood defences) in times of flood.
<i>GIS</i>	Geographical Information System
<i>GQA</i>	General Quality Assessment
<i>Groundwater</i>	Underground water contained in the pores and fissures of aquifers (water-bearing strata).
<i>HA</i>	Highways Agency
<i>HSE</i>	Health and Safety Executive
<i>HMIP</i>	Her Majesty's Inspectorate of Pollution
<i>Invertebrate Fauna</i>	Animals which lack a vertebral column - used for biological classification. Especially macroinvertebrates (animals of sufficient size to be retained in a net with a specified mesh size).
<i>IPC</i>	Integrated Pollution Control

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KDC	Kennet District Council
KVFA	Kennet Valley Fisheries Association
LA	Local Authority
LEAP	Local Environment Agency Plan
LNR	Local Nature Reserve
Local Agenda 21	Local Agenda 21 is an initiative arising from the Rio Earth Summit (1992) for implementing sustainable development at a local level by local authorities.
LPA	Local Planning Authority
Macrophytes	Vascular aquatic plants visible to the naked eye.
MAFF	Ministry of Agriculture, Fisheries and Food.
Main River	Some watercourses are designated as "Main River" - this status must first be approved by MAFF. The Agency has the power to carry out works to improve drainage or protect land and property against flooding on such rivers.
MI	Megalitre (one hundred litres)
MoD	Ministry of Defence
NDC	Newbury District Council
NNR	National Nature Reserve
NRA TR	National Rivers Authority - Thames Region
NVZ	Nitrate Vulnerable Zone
OCC	Oxfordshire County Council
OFWAT	Office of Water Services
<i>p a</i>	per annum
PHABSIM	Physical Habitat Simulation System - a suite of computer programmes used for the specification of ecologically acceptable flows.
Prescribed Flow (Flow Constraint)	A river flow incorporated as a condition in an abstraction licence, such that abstraction must cease or be reduced appropriately once the flow falls below this value.
R&DAA	Reading and District Anglers Association
RE	River Ecosystem

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Red Data Book	Red Data Books, for various Classes of flora and fauna are produced by the Joint Nature Conservation Committee. They list species categorised as Endangered, Vulnerable, Rare, Out of Danger, Endemic or Formerly Native (but not recorded since 1990) according to IUCN (World Conservation Union) definitions and criteria.
<i>RESCUE</i>	River and Environmental Spaces Clean Up Event
<i>RBC</i>	Reading Borough Council
<i>Riparian Owner</i>	A person/organisation with property rights on a river bank and/or river.
<i>River Corridor</i>	Of particular importance for conservation, such a corridor is a continuous area of land which has visual, physical or ecological links to a watercourse and where the conservation value is dependent on the quality or level of water within the channel.
River Quality <i>Objective (RQO)</i>	The water quality that a river should achieve in order to be suitable for agreed uses.
<i>RQO</i>	River Quality Objective
<i>RSPB</i>	Royal Society for the Protection of Birds
<i>RUGs</i>	River User Groups
<i>SAC</i>	Special Area of Conservation (A particular SAC can be made up of a number of isolated sites. A constituent of the candidate SAC is an individual site that has been proposed to the European Union)
<i>Section 105 Surveys</i>	These are surveys and studies being carried out by the Agency under the Water Resources Act 1991 in connection with DoE circular 30/92 and the Memorandum of Understanding with local planning authorities. The aim is to provide a better understanding of the flooding mechanisms, risk of flooding and extent of the flood plain under various flood events.
<i>SLA</i>	Special Landscape Area
<i>Slurry</i>	Animal waste in liquid form.
<i>SNCI</i>	Site of Nature Conservation Importance



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<i>Standards of Service</i>	The NRA Thames Region Standards of Service (Flood Defence) were developed for use with maintenance works as well as flood alleviation through capital schemes. These SoS differ marginally from the "Indicative Standards of Protection" used by MAFF to guide the prioritisation of capital schemes before they are subject to economic appraisal.
<i>STW</i>	Sewage Treatment Works.
<i>SSSI</i>	Site of Special Scientific Interest - A site that is given a statutory designation by English Nature to protect it because of its important conservation value.
<i>Sustainable</i>	Capable of being maintained at a steady state without exhausting natural resources or causing ecological damage.
<i>Sustainable</i>	Development that meets the needs of the present without compromising the ability of
<i>Development</i>	future generations to meet their own needs.
<i>SWQO</i>	Statutory Water Quality Objectives set by the Secretary of State, in relation to controlled waters.
<i>Topography</i>	Physical features of a geographical area.
<i>TST</i>	Thames Salmon Trust
<i>TWUL</i>	Thames Water Utilities Limited
<i>UTFC</i>	Upper Thames Fisheries Consultative
<i>UWWTD</i>	Urban Waste Water Treatment Directive
<i>Watercourse</i>	A stream, river, canal or the channel, bed or route along which they flow.
<i>WLMP</i>	Water Level Management Plan
<i>WRA</i>	Waste Regulation Authority
<i>WWT</i>	Wiltshire Wildlife Trust

### *Documents also in this series:*

- River Kennet Catchment Management Plan Consultation Report (March 1993)*
- River Kennet Catchment Management Plan Final Report (April 1994)*
- River Kennet Catchment Management Plan Newsletter (November 1994)*
- River Kennet Catchment Management Plan Annual Reviews 1994/95 (June 1995) and 1995/96 (July 1996)*
- River Kennet Cross-functional plan (October 1994)*

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*River Kennet Cross-functional plan (July 1995)*