



local environment agency plan

TAMAR ESTUARY AND TRIBUTARIES

ACTION PLAN

MAY 1997



**ENVIRONMENT
AGENCY**

Further copies of this Action Plan can be obtained from:

Darragh Turley
Environment Planner
Environment Agency South West Region
Sir John Moore House
Victoria Square
Bodmin PL31 1EB

Tel: (01208) 78301

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Foreword

This catchment has maintained a generally high environmental quality whilst supporting the development of a large urban population, with all the pressures that brings.

This Action Plan sets out the actions which will be carried out over the next five years to maintain this value and make improvements where impact has occurred. In addition to our own actions we welcome the opportunity to carry forward a number in partnership with other groups. This includes our involvement through the Tamar Estuary Consultative Forum with the Tamar Estuaries Management Plan which has been developed in conjunction with this plan.



GEOFF BOYD
Area Manager (Cornwall)



Key Statistics for the Tamar Estuary and Tributaries

Catchment Area	821.75 km ²
River Length	
River Tavy	35.2 km
River Plym	21.3 km
River Yealm	18.5 km
River Lynher	34.8 km
Population (1991)	330,000 (approx.)
Main Urban Areas	Plymouth, Tavistock, Saltash
Average Annual Rainfall	1450 mm
Industries	Defence, agriculture, fishing, tourism

Information correct as of March 1997
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map 1

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Tamar Estuary and Tributaries Catchment

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Acknowledgements

We would like to thank all those who responded during the consultation period giving valuable contributions to this report. We would like to give particular thanks to the Catchment Steering Group (see Section 5). They are:

Name	Representing
Mr R Bastard	Riparian Owner
Mrs V J Burns	Regional Flood Defence Committee, Devon County Councillor
Mr B S Burrows	Regional Fisheries Advisory Committee, Tamar, Tavy, Lynher Netsmen Association
Cdr N Crews	Queens Harbour Master
Mr J Dawe	National Farmers Union
Mr R Dean	Environmental Planning Manager, Plymouth City Council
Mr P Jones	Environmental Risk Assessment Manager, Devonport Management Ltd
Lady E Kitson	Member Dartmoor National Park
Mr D L Owen	Plymouth & District Fishing Association
Mr I Parker	Tavy, Walkham & Plym Fishing Club
Major J H Piper	Tamar and Tributaries Fishing Association
Dr P Reay	Senior Lecturer in Fish Ecology, Plymouth University
Mr J Stewart	English Nature
Mr C Underwood	South West Water
Mrs A Voss-Bark	Regional Fisheries Advisory Committee, Riparian Owner
Ms P Warner	Forward Planning Officer, West Devon Borough Council
Mr A G White	River Lynher Fishing Association

Catchment Vision

In order to meet the diverse human demands, whilst protecting the outstanding natural resources upon which a healthy environment and lifestyle depends, we see key objectives to include:

- Maintenance of high water quality standards with improvements on some sections of water and reductions in pollution incidents.
- Ensuring the efficient and prudent use of abstracted water in order to protect the environment and reduce the need for development of additional sources.
- Review of unacceptably low flows due to authorised abstractions, not drought related.
- Minimising the risk to people and property from flooding.
- Preventing adverse environmental impact from areas of mineral working and contaminated land, including the progressive move to river needs consents for areas of continuing mining.
- Maintain, improve and develop fisheries to their natural carrying capacity.
- To increase enjoyment and appreciation of the water environment.
- Maintenance of the natural hydrological cycle, including natural river and wetland functions and processes, especially where affected by development.
- Maintenance, and where appropriate, enhancement of the biodiversity of aquatic and wetland habitats and species and those associated with them. Features of key importance within the proposed Special Area of Conservation and Special Protection Area may require particular consideration.

The achievement of this vision will require close co-operation between many organisations and individuals. We recognise the importance of establishing links with local communities and representatives, and in particular in working with the local authorities.

Vision

1. Introduction

1.1 The Environment Agency

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

Our Principal Aim

Our aim as set out in the Environment Act 1995, is to protect or enhance the environment, taken as a whole, in order to play our part in attaining the objective of sustainable development.

Our Objectives

The Environment Agency works towards sustainable development through seven objectives, set by Ministers:

- An integrated approach to environmental protection and enhancement, considering the impact of all activities on natural resources;
- Delivery of environmental goals without imposing excessive costs on industry or society as a whole;
- Clear and effective procedures for serving its customers, including the development of single points of contact with the Agency;
- High professional standards, using the best possible information and analytical methods;
- Organisation of its own activities to reflect good environmental and management practice, and provision of value for money for those who pay its charges, and for taxpayers as a whole;
- Provision of clear and readily available advice and information on its work;
- Development of a close and responsive relationship with the public, including local authorities, other representatives of local communities and regulated organisations.

Our Role

Our work is divided into seven main functions:

- Flood Defence
- Water Resources
- Pollution Prevention and Control
- Navigation
- Fisheries
- Recreation
- Conservation.

These roles are explained in further detail in Appendix 1.

1.2 Environment Planning

The environment is subject to a wide variety of uses which invariably interact with and sometimes conflict with each other. The process of environment planning has been developed to help manage these interactions and conflicts for the overall benefit of the environment and its users.

The Environment Planning process within the Environment Agency includes the production of two documents; a Consultation Report and an Action Plan. The Consultation Report describes our vision for each catchment, identifies problems and acts as a focus for consultation between the Environment Agency and other interested parties. Following consultation, the Action Plan identifies actions to resolve the problems and issues. The Plans are part of an ongoing dialogue between ourselves and the various organisations and individuals involved in the protection and management of the environment. They also provide background data for Agency responses to development plans and highlight our concerns about development.

This Action Plan follows the production of the Tamar Estuary and Tributaries Consultation Report (Ref. 1) and the consultation period. The Action Plan will form the basis for improvements to the environment and primarily covers the five year period from 1997 to April 2002. Achievement of the Action Plan will be monitored and reported annually. Future annual reviews may also include new issues.

The Catchment Steering Group

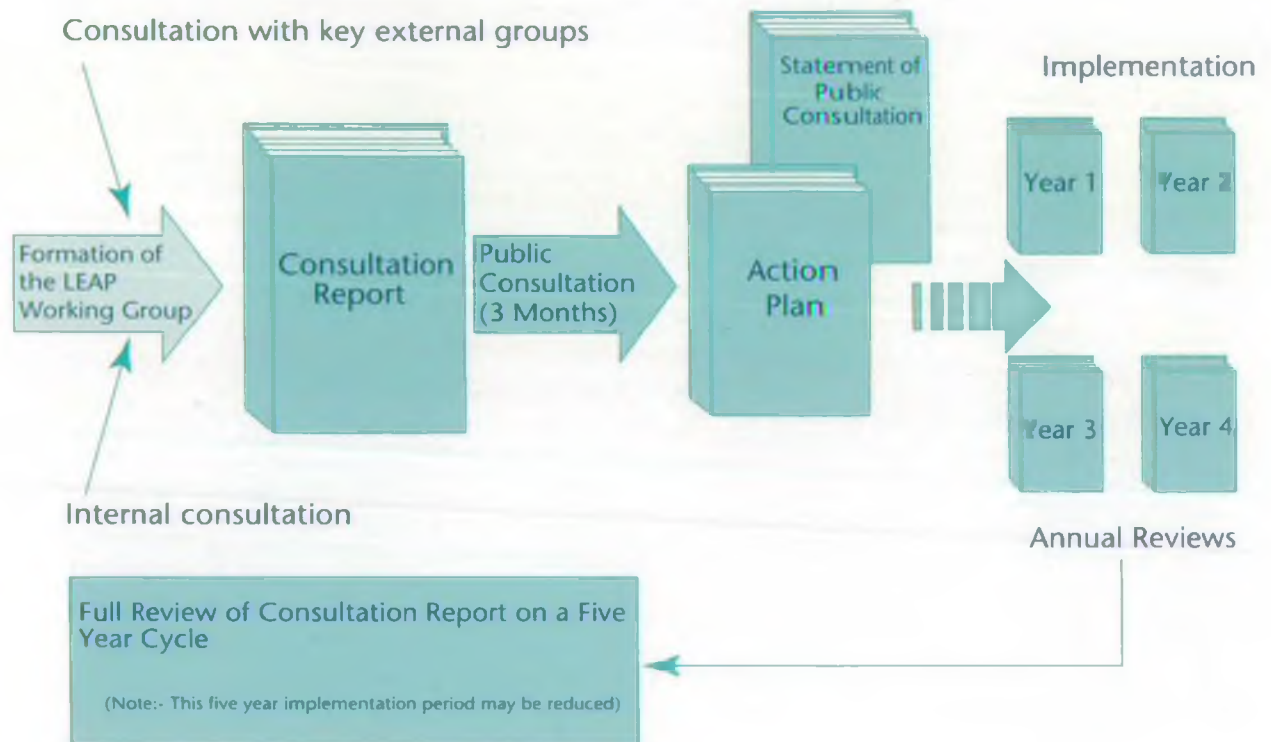
The Steering Group represents a range of commercial, local authority and environmental interests who endorse the Consultation Report and Action Plan prior to public release (see Acknowledgements for a list of members). They will monitor the implementation of the Action Plan and provide the Agency with specific advice on the importance of issues within the catchment. They act as a communication link between the local community, the Agency and its committees and will help to promote and develop initiatives of benefit to the environment within the catchment. The Catchment Steering Group will meet once a year during the life of this plan.

This Plan and the Tamar Estuaries Management Plan

This Local Environment Agency Plan (LEAP) was produced alongside the Tamar Estuaries Management Plan. Both are non statutory plans which cover similar areas. The need to produce two plans arises from differing organisational requirements. This Environment Agency Plan concentrates particularly on the environmental aspects of the area drained by a number of principal rivers. The Tamar Estuaries Management Plan concentrates particularly on the Plymouth Sound and estuaries and is concerned with social, economic and environmental improvements.

Both plans will require the joint action of a number of bodies to deliver suggested actions to bring about improvements.

Diagram 1 - The LEAP Process



2. Review of the Consultation Process

2.1 Public Consultation

The issues listed in this Action Plan were identified in the Consultation Report or resulted from the consultation process. The Tamar Estuaries and Tributaries LEAP Consultation Report was launched on 23rd July 1996 jointly with the Tamar Estuaries Management Plan. The consultation period closed on 25th October 1996. During this time the Consultation Report was promoted by:

- Radio, television and press reports;
- Displays at Plymouth, Tavistock, Saltash and Torpoint libraries, with Agency staff available to answer questions on specified days;
- Exhibitions, with Agency staff available to deal with enquires, at Plymouth and Callington Town Hall;
- The distribution of over 500 copies of the reports;
- Meetings with interested parties to discuss the plan.

2.2 Results of Consultation and Further Action

A Statement on Consultation was produced in November 1996 and was distributed to all respondents. Copies are available on request.

Eighty-three written responses were received, of which 32 were questionnaire replies. The respondents included statutory organisations, industry, landowners, sport and recreation groups and the public (Appendix 2).

Several organisations indicated their strong support for the concept of catchment management planning. Our vision for the catchment was shared or fully supported by a large number of organisations. All comments have been considered and, where appropriate, incorporated in the Action Plan. No additional issues have been added but many have been modified in response to the comments received and the negotiations which followed the end of the consultation period.

Many suggestions were received regarding the wording and the layout of the Consultation Report. Although we will not republish the report, we will use some of the ideas suggested.

We asked consultees to list what they felt were the most important issues highlighted in the Consultation Report. The responses indicated that the following were the most significant issues:

- Meeting public water supply demand;
- Decline of important habitats and species;
- Effects of discharges on water quality;
- Impacts of Devonport Dockyard;
- Conservation value of floodplain habitats;
- Lack of public access to the water environment;
- Waste management.

We list actions to tackle these issues, amongst others, in the Activity Tables in Section 5.

3. Catchment Overview

Landscape, Wildlife and Archaeology

There are five major rivers in this catchment. The Tamar, Tavy, Plym and Lynher run into the Tamar Estuary, with the rivers rising on the uplands of Dartmoor and Bodmin Moor. The River Yealm rises on Dartmoor and flows into the Yealm Estuary, east of Plymouth Sound.

Plymouth, a major maritime and industrial city, contrasts strongly with the rural character of the upper catchment, and the moorland area of the headwaters.

This catchment displays a diverse range of landscapes. About a third lies within the upland of Dartmoor, and has a culturally and ecologically rich landscape of heaths and moors, bogs, pools, granite tors, and archaeological features such as stone circles, burial sites and clapper bridges. The Tamar Valley is characterised by deep, well wooded ravines, with extensive creeks and mudflats in the lower reaches. Historic human activity is evident in the many mining remains and abandoned market gardens on the valley slopes. The South Hams and Caradon Districts area, flanking Plymouth Sound, consist of rolling hills supporting relatively intensive agriculture.

An important wildlife feature of this catchment is the range of estuarine habitats. Mudflats occupy a significant amount of the channel in the lower stretches of all the major rivers draining this catchment. Estuaries are restricted, threatened habitats and are recognised as a priority under the European Union Species and Habitats Directive.

Other wetland habitats such as reedbeds and freshwater marshes are significant in certain river valley areas, while substantial areas of deciduous woodland fringe many reaches of river in the catchment. The high moors at either side of the catchment support habitats such as blanket bog, acid grassland, dry and wet heathland and scattered scrub.

Two important historic aspects of this catchment are the rich Bronze Age and Iron Age remains on Dartmoor and Bodmin Moor and the various historic sites in and around Plymouth, which illustrate its development as a strategic naval port.

Economy

The economic health of Plymouth is closely related to the Defence industries that make up a large proportion of its employment. Plymouth is also one of the largest ports in Devon and Cornwall and has a whole range of heavy and light industry. China clay is locally important in the Lee Moor area in the east of the catchment. The whole of the area is heavily visited and tourism is an important industry. Apart from tourism, the rural parts of the catchment support a mainly agricultural economy.

Pressures on services and infrastructure in South East Cornwall and the rural parts of Plymouth's 'travel to work' area will continue, particularly as additional land for housing and employment in the City itself is diminishing.

Fisheries

The Rivers Tamar, Plym, Tavy, Lynher and their tributaries support important fisheries for Atlantic salmon, sea trout and brown trout throughout their freshwater length. In addition to sea trout and brown trout, the River Yealm supports a small run of Atlantic salmon, mainly entering the river late in the season. Bullheads, brook lamprey and eels are found at most locations. The Tamar, Tavy and Lynher Estuaries support one of the most productive net fisheries in the South West.

Recreation and Amenity

Much of the catchment has a high level of water-related recreational use. The estuarine and coastal sections provide the major focus for water-based recreation. The Environment Agency owns a substantial area of River Tamar fundus (the channel bed below high water mark) in the Calstock area, which provides a number of boat moorings. Other sites owned or leased by the Environment Agency include part of the River Plym. These sites are currently being reviewed by Environment Agency staff to assess their potential for recreational enhancement.

Flood Defence and Land Drainage

We maintain a number of flood defence schemes in the catchment. Other work, such as tree clearance, is undertaken as needs dictate. Historically, flood defence measures were largely to protect agricultural land. In recent years it has focused on property, particularly Plymouth and its suburbs. We provide a flood warning service for the major rivers in the catchment and for the coastline.

The Built Environment and Development Plans

The catchment lies mostly within areas administered by Plymouth City Council, West Devon Borough Council, Caradon and South Hams District Councils, with a small part within the area of North Cornwall District Council's control. New Local Plans have environment protection policies, which should result in better future protection for the environment from development. Development is likely to be concentrated in the larger settlements of the catchment and there is a proposal at its very early stages for a new community in South Hams which may be situated within this catchment.

Mineral Extraction

There are active quarries in the catchment working a variety of minerals; limestone and shale at Moorcroft and Pomphlett, building stones and aggregates at small quarries scattered throughout the catchment, and china clay at the Lee Moor complex.

Much of the catchment carries the legacy of historic metalliferous mining. The most important mining area was a 3km wide band at the tidal limit of the River Tamar, embracing an extensive area of mineralisation extending into the Tavy and Lynher Catchment. The effects of this industry are still impacting on the environment today.

Waste Management

There are two active landfill sites in the catchment accepting domestic and other putrescible wastes: Holwood Quarry and Chelson Meadow. One other site, Crowndale Landfill which is now closed, is recorded as having historically accepted significant volumes of domestic wastes. As a major population centre Plymouth and outlying towns produce large amounts of waste. Disposal, now and in the future, is an issue. The scale of the problem depends on the success of other waste management options such as Plymouth City Council's recycling scheme.

Farming

Agricultural land accounts for almost 70% of the catchment area, of which 80% is grassland. Livestock farming is the dominant farm type. There has been extensive, proactive pollution prevention work carried out by the Agency and its predecessors and a decline in the numbers and severity of pollution incidents relating to farming. Due to changes in legislation preventing the disposal of sewage sludge to sea the spreading of controlled wastes and sewage sludge to land in the catchment is likely to become more widespread and may be an issue in the future.

Forestry

Forests and woodlands are widely scattered throughout the catchment. Some forestry in the catchment is owned by the Forestry Commission and managed

by Forest Enterprise, with a commitment to improve landscape and conservation value and public access. The most significant recreational sites are Plym Woods in the Plym Valley and around Burrator Reservoir.

Water Abstraction and Supply

In the catchment, both rivers and groundwater are used for water supply. 94% of the total authorised abstraction is from surface waters and is used mainly for public and private water supply, including use for fish farms, water power and industrial use. 6% of the total authorised abstraction is from groundwater and is used mainly for agriculture and private water supply. South West Water (SWW) provide mains supplies within the catchment and hold seven public water supply licences for abstraction within the catchment, including Burrator Reservoir. Roadford Reservoir, located in the Freshwater Tamar Catchment, and Colliford Reservoir, located in the Fowey Catchment, are other major sources of much of the catchment's public water supply.

Effluent Disposal

There are 54 SWW sewage treatment works, of which 14 are small works which receive no trade effluent. SWW are currently working on Plymouth Central Clean Sweep which will remove crude sewage discharges into Plymouth Sound. This scheme is due to be completed in 1998.

Integrated Pollution Control

There are four Integrated Pollution Control (IPC) authorisations in the catchment: a cement manufacturer and an organic solvent recovery process, a combustion process and a coating process, all situated in Plymouth.

Radioactive Substances

Her Majesty's Naval Base at Devonport has performed a role for the Ministry of Defence in supporting the Royal Navy's nuclear powered submarine fleet since the early 1970s. The submarines require regular maintenance and during these maintenance periods solid and liquid radioactive waste arisings can occur. Disposal of these wastes is controlled by means of Certificates of Approval granted on the same terms as for sites with nuclear site licences which are regulated under the Radioactive Substances Act 1993.

4. Protection through Partnership

4.1 Working with Others

The Agency is well placed to influence many of the activities affecting the water environment through the Environment Act 1995 and other legislation. Local authorities are responsible for controlling land use and it is primarily land use change in the long term and the opportunities presented by redevelopment that will tackle the issues of urban runoff, contaminated land and the renewal of river corridors. In addition the support of community groups, individuals, landowners and businesses will be needed to tackle issues such as litter, pollution, private sector investment and river corridor enhancement.

The Agency must work in partnership with others to ensure that the Actions in this plan are implemented and that the key objectives and the long term vision can be realised. The Agency is working closely with Local Authorities in particular. Education also has an important role in changing attitudes and work practices.

The following organisations are included in the five year action programme :

- Plymouth City Council
- Plymouth Groundwork
- West Devon Borough Council
- Countryside Commission
- English Nature
- Highways Agency
- Caradon District Council
- South Hams District Council
- South West Water
- Devon Wildlife Trust
- Cornwall County Council
- Devon County Council
- Cornwall Wildlife Trust
- Tamar Estuaries Consultative Forum

4.2 Local Agenda 21

In 1994 the UK government produced a national sustainable development strategy and action plan for the UK. At the local level, most local authorities are working with local communities to produce their own Local Agenda 21 programmes, to promote sustainable development and to improve quality of life. It is the idea of thinking globally, acting locally.

We would welcome the opportunity to work with Local Agenda 21 groups to help deliver some of the actions listed in the activity tables. For instance, addressing discharges of dirty water to surface waters through misconnections of appliances such as washing machines.

Land Use Planning and Environment Planning

Land use is the single most important influence on the environment. It follows therefore, that land use change has important implications for the water environment which can be both positive and negative. Government planning guidance highlights the importance of communication between local planning authorities (LPAs) and the Agency, and the relationship between land use and environmental matters.

The control of land use change is primarily the responsibility of LPAs, through implementation of the town and country planning acts. Local development plans provide a framework for land use change and are the key consideration in the determination of planning applications.

The Agency is a statutory consultee on development plans and certain categories of planning application. This allows the Agency's views to be considered by the Council prior to a planning application being decided or policies in a development plan being approved. Planning liaison is the link between the Agency's functions and local authority planners.

The NRA produced a set of statements in its document "Guidance Notes for Local Planning Authorities on the Methods of Protecting the Water Environment through Development Plans". These statements provide a general guide to LPAs on what policies should be included and why they are important. This guidance will be updated soon by the Agency.

5. Activity Tables

The following tables outline the actions needed to address the issues we identified in the Consultation Report. The issues and activities are **not** presented in any order of priority. Issues have been renumbered from the Consultation Report. Appendix 5 shows where issues listed in the Consultation Report are located in this plan.

The tables show the following information:

- Organisations which will implement the proposed activities, **either** in a lead role or as a key supporter, are listed under the heading 'Lead Body'.
- A timetable for the activity.
- An estimate of cost to the Agency over the next five years, **where** available. The initial 'U' means that no cost estimate is **available** at present.
- The financial years covered by this plan are represented by a **single** year, for example, '97' is the financial year April 1997 to March 1998.
- Those actions where we are not currently able to commit **resources** will remain empty.
- Please refer to the abbreviations for the definition of acronyms.

The following points should also be noted:

- Our everyday work commits substantial resources to **monitoring** and managing the environment. Some of this work was explained in **the** Consultation Report.
- Some actions will require feasibility studies and cost-benefit **appraisal** of options prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be justified. The Environment Agency and the participating organisations have **limited** resources and powers, and some work may take longer than indicated owing to funding availability, government policy and more urgent priorities.
- Should more issues become apparent during the life of this Plan, further actions will be added at succeeding Annual Reviews.

5.1 Quality of surface waters

We aim to maintain and, where appropriate, improve the quality of water **for** all those who use it. This is achieved by setting water quality targets for the catchment based on:

- Standards laid down in EC Directives
- River Quality Objectives (RQOs) to protect recognised uses (see Appendix 3).

5.1.1 River Quality Objectives

In the Consultation Report (Ref. 1) we proposed RQOs for the whole **catchment**. Following the consultation process, these targets have now been finalised (see Map 2).

Long term RQOs have been set for 11 stretches in the catchment. These are objectives we would like to achieve, but the actions required to achieve them are long term and are not achievable in the short term. We will use these long term RQOs as a basis for setting consents for new discharges and planning for future water quality improvements.

We 'set-aside' data where high concentrations of metals or low pH values are caused by the natural geology of the catchment. This allows us to protect good water quality shown by other determinands in the RE classification. In the Consultation Report we highlighted 18 stretches where we will 'set-aside' data. Additionally we will now 'set-aside' the data for zinc on the top stretch of the River Walkham and copper on the top stretch of the Tiddy Brook. The source of both are due to natural geology and historic mining activity. All 18 'set-aside' stretches are shown on Map 2.

5.1.2 EC Urban Wastewater Treatment Directive

This Directive specifies minimum standards for levels of sewage treatment and sewerage systems to be achieved by certain dates before the end of 2005. It requires higher standards of treatment (secondary treatment) for discharges to 'Sensitive Areas'. Sensitive Areas are those waters which receive discharges serving population equivalents of greater than 10,000 and are, or may become, eutrophic in the future. We are responsible for making sure that discharges receive the level of treatment specified in this Directive.

The Lynher Estuary has been investigated as a candidate Sensitive Area (Eutrophication). We have been monitoring the estuary to determine its trophic status. The studies did not indicate a problem, therefore no further work is proposed.

5.1.3 EC Freshwater Fish Directive

Action will be carried out (Action 3.1) to identify the causes of exceedences on the River Tavy reported in the Consultation Report.

5.1.4 EC Dangerous Substances Directive

Actions will be carried out to identify the causes of exceedences of Environmental Quality Standards for TBT on the Yealm (Actions 3.5, 3.6) and copper and zinc on the River Tavy (Action 3.1). Similar actions on the Tamar will not definitely be carried out in the next five years as we anticipate improvements through the Clean Sweep Scheme.

5.1.5 Tamerton Foliot Stream

The water quality in Tamerton Foliot Stream is generally good, supporting a variety of life, including trout. Where our investigations have identified particular sources of pollution, remedial works have been implemented. However, this is a stream system where the risk of pollution from urban runoff remains significant.

5.1.6 Brixton Sewage Treatment Works

We have made visits to the works and have no cause for environmental concern. No further action is proposed, though we will continue with our routine monitoring.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 1: Sewage treatment works (STWs) impacting water quality								
Crowndale (Tavistock)								
1.1 Improve storm sewer overflows.	SWW	U	●					Improvements to the sewerage system by SWW are planned in 1997.
1.2 Additional investment may be required to improve works.	SWW	U		●				
1.3 Review discharge consent if required.	Agency	U			●			
Callington STW								
1.4 Improve works.	SWW	U						The STW will be a candidate for inclusion in AMP3 for the provision of nitrification. Improvements to the works may be required. The STW discharges to the Haye Stream, impacting invertebrates.
		U						
Plymouth Central								
1.5 Complete Plymouth Central Clean Sweep Scheme.	SWW	U	●	●				
Yealmpton								
1.6 Improve storm sewer overflows.	SWW	U						Improvements programmed under AMP3. Improvements to treatment works may also be required.
Issue 2: Other discharges impacting water quality								
2.1 Investigate effect of surface water drainage at Wembury.	Agency	5k	●	●				Contributing to EC Bathing Water failure at Wembury.
2.2 Investigate impact from Lee Mill industrial estate surface water drainage on River Yealm.	Agency/ SWW	U	●					Thought to be a number of sources.
2.3 Investigate impact of china clay discharges on invertebrate communities.	Agency	U						Not a priority action.
2.4 Reduce 'dirty' surface water runoff from china clay operations.	Agency/ ECCI		●	●	●	●	●	Ongoing work is seeking to reduce levels of suspended solids entering watercourses. Of particular concern is the Tory Brook.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 3: Poor water quality requiring further investigation								
3.1 Investigate causes of exceedence of EC Freshwater Fish and Dangerous Substances Directives standards on River Tavy and failure to comply with long term RQO.	Agency	7k	<div><div></div></div>					Investigation into the exceedence of the EC Freshwater Fisheries Directive standards in 1993 and 1994 did not identify the cause of non-compliance. The site was compliant with the Directive in 1995 and 1996. We will continue monitoring.
3.2 Investigate sources of copper and zinc EQS failure in Plymouth Sound.	Agency							3.2, 3.3 and 3.4 are not priority actions as improvements through Action 1.5 are expected to change water quality significantly. We will continue to monitor under the Directive and take action if failures continue to occur after the scheme is in place.
3.3 Review discharge consents if required.	Agency							
3.4 Investigate other significant sources into estuary.	Agency							
3.5 Investigate sources of tributyltin (TBT) in the River Yealm.	Agency	10k	<div><div></div></div>					We are currently improving our methods analysis in order to detect TBT at lower levels. We will continue monitoring under the Dangerous Substances Directive.
3.6 Investigate sources of low pH and elevated zinc concentrations on the River Yealm.	Agency	1k	<div><div></div></div>	<div><div></div></div>				We are now monitoring upstream and downstream of discharges. We will seek derogation if causes are natural.
3.7 Investigate general decline in mollusc community at monitored sites in the Hamoaze.	Agency	5k	<div><div></div></div>					Further investigation to determine whether the effect is the result of organic pollution or because of sampling method.
3.8 Sample macro invertebrates in the vicinity of Devonport Dockyard.	Agency	15k						Planned sewerage improvements should reduce levels of organic enrichment. Further sampling will be undertaken on completion of Plymouth Central Clean Sweep sewage improvements.

5.2 Meeting public water supply demand

We need to ensure there is an adequate public water supply now and in the foreseeable future. The east of the catchment lies within SWW's Roadford Strategic Supply Zone and the west in Colliford Strategic Supply Zone. Deficits in supply have been forecast for Colliford Zone by 2001 under the high demand scenario and by 2021 under the low demand scenario.¹ Roadford Zone is forecast to have a deficit by 2021 under the high demand scenario.

The options that we are promoting to meet this deficit, and to ensure that the low demand scenario is the one that actually occurs, are outlined below in order of preference:

- encourage metering in all new developments;
- encourage selective metering as an alternative to new resources;
- encourage and publicise efficient water use and recycling;
- promote the efficient use of water;
- encourage leakage reduction to a target of at least 200 litres/property/day and agree local economic leakage targets;
- encourage water companies to make more efficient use of water resources;
- welcome and encourage the water efficiency plans which OFWAT has asked each water company to publish.

¹ The high scenario assumes high growth in consumption, no improvements to reduce losses and no increase in domestic metering to reduce water use. The low scenario assumes low growth in domestic consumption, no growth in industrial/commercial consumption, broad company leakage targets for SWW and little or no increase in the proportion of domestic properties subject to metering above 1991 levels.

5.2.1 SWW Improvements

As part of their actions to better manage water resources within the strategic supply zone SWW have installed variable speed pumps at the Lopwell abstraction to improve the intake and distribution system.

As part of a campaign to promote the wise use of water, SWW have produced a leaflet for distribution to all customers.

5.2.2 Agency Water Resources Strategy

In 1995 we produced 'Tomorrow's Water' (Ref. 2), a strategy for the development of water resources in the South West. There is now a requirement to review that document in light of changes in water supply and demand, see Issue 5.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 4: Operation and management of public water supply during droughts								
4.1 Develop water conservation controls for a drought.	SWW	U	<div><div></div></div>					SWW have produced water conservation controls for the Roadford Strategic sources. The Agency is auditing this information. A similar process will be concluded for the Colliford strategic sources during 1997.
4.2 Revise Roadford Operating Agreement.	SWW	U	<div><div></div></div>					
Issue 5: Meeting future public water supply demand								
5.1 Modelling of the Strategic Supply Systems to determine the yield, best use of available resources and future developments: a) Roadford b) Colliford.	All actions: SWW/ Agency	(Agency costs only) 15k 15k	<div><div></div></div>	<div><div></div></div>				Prototype Agency model for Roadford complete; discussions with SWW over model assumptions ongoing.
			<div><div></div></div>	<div><div></div></div>				

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
5.2 Review resource and yield assumptions.		40k	●	●				Resource/yield reviews to take place as part of the third periodic review of SWW's Asset Management Plan (AMP3) as required by OFWAT.
5.3 Encourage demand management and leakage control.	Agency	20k	●	●	●	●	●	We encourage efficient use of water, including metering of new domestic properties and properties where resources are stressed. We expect SWW to set and achieve economic leakage targets prior to the development of new resources.
5.4 Review and revise 'Tomorrow's Water'.	Agency	20k	●	●	●			

5.3 Alleviation of low flows

In a review to prioritise low flow sites the River Tavy was identified as being significantly affected by abstraction. We are now part way through an alleviation of low flow project on the Tavy, made up of a number of different actions, outlined in Issues 6 and 7. The aim is to protect the water environment and increase flows down the Tavy. We will be carrying out further monitoring to gauge any benefits or impacts.

There have been a number of other sites highlighted where low flows may be having an impact; two of these are identified in Issue 9. A review to prioritise other low flow sites is required but is not planned in the next few years.

We trialed the River Diaries Initiative on the River Tavy to help identify acceptable conditions for angling. The response from anglers has been poor so the scheme has been dropped.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	

Issue 6: Assessing effects of abstraction on salmonids in the River Tavy

6.1 Report results of fish tracking on the River Tavy.	Agency	10k	●					We will seek to include recommendations into any agreement with SWW.
6.2 Complete validation of fish counter at Lopwell.	Agency	100k	●	●				Counter installed, now being validated.
6.3 Run fish counter.	Agency	as 6.2	●	●	●	●	●	
6.4 Modification of fish pass - concentrate residual flows.	Agency/SWW	10k	●					Modification still to be agreed.
6.5 Complete Phase I PHABSIM to quantify impacts of abstractions on habitats.	Agency	30k	●					Fieldwork complete. Work to produce locally derived habitat suitability indices for Phase II ongoing.
6.6 Complete Phase II habitat suitability indices.	Agency	50k	●	●				

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 7: Balancing flows between the River Tavy and hydropower abstractions								
7.1 Identify and agree an operational regime acceptable to both river and requirements of power stations to protect viability of power station.	Agency/ SWW	30k	●	●				Model structure and input data being finalised.
7.2 Determine minimum acceptable conditions in Tavistock-Morwellham Canal.	Agency	15k	●					Two trials carried out in 1995 and 1996. Draft report produced. Outstanding concerns to be addressed via further trials in 1997.
7.3 Control abstraction into the Tavistock-Morwellham Canal.	Agency/ SWW	18k /U	●	●				Monitoring continuing. Draft operating arrangements have been drawn up but need to be agreed by SWW.
Issue 8: Protecting the deprived reach below Tavistock Fish Farm abstraction								
8.1 Measure impact of fish farm abstraction.	Agency	U	●					There is ongoing monitoring of the abstraction. In addition we will be reviewing measurement facilities.
8.2 Discuss operation of fish farm abstraction when changes are made to SWW abstractions.	Agency/ Owners							Action is dependent on securing additional flows upstream of the fish farm abstraction.
Issue 9: Other potential low flow sites								
River Meavy (Burrator)	Agency/ SWW	U	●	●				Pipework is being installed and agreement being sought on the timing of water releases from the reservoir.
9.1.1 Water releases to alleviate impact on fisheries.								
9.1.2 Review impacts of reservoir operation on the fishery.	Agency	U	●	●				We will be producing a report on fisheries monitoring data.
9.1.3 Update comparison of compensation releases and natural Q95.	Agency	<1k	●					
9.1.4 Review compensation flow from reservoir.	Agency/ SWW	U						Action dependent on the success of 9.1 and conclusions from 9.2.
River Plym (Ditsworthy Warren Leat)	Agency/ ECCI	U	●	●	●	●	●	ECCI are agreed in principle to protecting the river. We will review methods of increasing flow, compatible with their business needs.
9.2 Increase flows down river.								

5.4 Archaeology and the historic environment

The catchment contains many sites and features of historic and archaeological interest. Although there is a wealth of information from a wide range of sources on the archaeological and historic value of the catchment, it is not in a usable format. Many organisations would benefit from the production of a simple document based on a rapid archaeological assessment of the wider catchment.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 10: The need for archaeological assessments								
10.1 Undertake Assessment of water related resource.	Archaeological bodies	U						An assessment of the Tamar Estuary has been undertaken. Further work is planned, which we will support where possible.

5.5 Conservation of the natural environment

This catchment, like much of lowland Britain, has lost a large proportion of its semi-natural habitats. Many losses can be linked to the drainage, improvement, expansion and continued intensive use of agricultural land and increased urbanisation. Some habitats, particularly wet grasslands, are also vulnerable to neglect or non-agricultural threats.

In today's landscape, rivers and wetlands provide refuge for many species that would have been widespread before these changes; the conservation of the quality of rivers and wetlands is therefore vital in this catchment. Current initiatives to classify and describe the area, such as the Rivers and Wetlands Biodiversity Action Plan (R&W BAP), Regional Biodiversity Initiative and Natural Area Profiles will help us to prioritise our work, to encourage wise use of environmental resources and secure sustainable environmental improvements.

5.5.1 Natural Areas Project

English Nature and the Countryside Commission are working on a programme to describe England according to natural and cultural boundaries. Profiles are being written 'Natural Areas' by English Nature which will set out broad objectives and visions for their future protection and enhancement. This catchment includes sections of the Dartmoor, South Devon, Bodmin Moor, Start Point to Land's End and Cornish Killas and Granite natural areas. Draft profiles are now available for all these areas.

5.5.2 Biodiversity Action Plans

The table that follows contains references to the Rivers and Wetlands Biodiversity Action Plan (R&W BAP) for Devon. For full details of the biodiversity initiative please refer to the original documents (Ref. 3). A full list of species and habitats related to the aquatic environment can be found in Appendix 4; other terrestrial species exist. Regional and County Biodiversity Initiatives have been started, each overseen by a steering group of relevant bodies.

The Agency is signed up as the co-ordinating body for Rivers and Streams, Floodplains, Reedbeds, Grazing Marsh (English Nature co-lead), Otter,* Water Vole* and Atlantic Salmon. There are others not believed to exist in this LEAP area. The Agency has been assigned nationally as the contact body for those species marked.*

A number of other key species and habitats listed by the UK Biodiversity Steering Group, but not relating directly to the water environment, occur in this LEAP area. Examples are lowland heathland, lowland farmland, cirl bunting and

greater horseshoe bat. The Agency does become involved with some of these, an example being through the regulation of spreading of waste to land. We will continue to develop our database of all species and habitats, whether water related or not, to have a high regard for these key biodiversity features and increase staff awareness of reporting presence of key species. We will continue to liaise with relevant external organisations whenever necessary, but we will not be responsible for developing Biodiversity Action Plans for these particular species and habitats.

The lists in Appendix 4 do not take into account the degree of threat to each species or habitat within this specific catchment. There is an urgent need to review the lists, in conjunction with other conservation organisations, in order that more urgent actions are targeted as soon as possible.

Otters have returned to the catchment in significant numbers, following their major decline in the 1960s and 1970s. Maintaining this recovery is a priority for us in our role as species contact point under the biodiversity initiative. We will implement the species plan in the R&W BAP as far as possible. This process has begun, but will become more focused on completion of the species and habitat audits.

Water voles have suffered a sharp decline nationally over recent decades. Their status in this catchment is uncertain, but there appears to be areas of suitable habitat, or where such habitat might be improved. Plans for this species are well developed both locally and nationally and we will adopt the recommendations.

Riparian birds such as sand martins and kingfishers have high popular appeal; they are vulnerable to loss of nest sites as a result of erosion control works to rivers, as well as adverse conditions either here or in wintering areas. Concern has been expressed at changes in the population and we need to monitor this with the help of other organisations. We will ensure all known nest sites are protected during our own work or when authorising the actions of others.

Issues concerned with protection and enhancement of the riparian strip and wetland habitats (raised in the consultation report), will be focused for action through Issue 5.

5.5.3 Invasive Species

Giant Hogweed has now established itself along parts of the Tamar Estuary, and a survey since the publication of the Consultation Report has shown population levels that cause us concern. We will be looking to carry out a project to eradicate the plant on our own land as a priority and on other land if funds can be secured. We have produced a booklet, available on request, that gives advice on controlling these species.

5.5.4 Special Areas of Conservation (SAC) and Special Protection Areas (SPA)

The Tamar Estuaries Complex is also proposed as a Special Protection Area (SPA) under the EC Birds Directive. Plymouth Sound and Estuaries and Dartmoor have gone forward to Europe as candidate Special Areas of Conservation (SAC). As the Plymouth site is of marine interest there will be a need for Relevant Authorities to produce a Single Scheme of Management. Relevant Authorities are public bodies who have powers or functions which may impact on the marine environment of a European marine site and have the powers to establish the Single Scheme. This Scheme will set the framework within which activities will be managed, either voluntarily or through regulation, so as to achieve the conservation objectives of the European marine site.

English Nature is required to advise other Relevant Authorities as to the conservation objectives for the site and any operations that may cause deterioration of features for which the site was identified. There will be wide consultation on any Scheme through the existing management frameworks of

the Tamar Estuaries Consultative Panel and the Port of Plymouth Marine Liaison Committee. It is envisaged that any Scheme will be closely related to the Tamar Estuaries Management Plan though, whereas the Plan is non-statutory, the Scheme will be statutory (even though it may rely on non-statutory means for its delivery).

The Tamar Estuary contains extensive mudflats, saltmarsh and reedbeds. It also supports a variety of mud-dwelling invertebrate communities and consequently attracts nationally significant numbers of waders and wildfowl, including internationally significant species such as avocet and little egret. In places estuarine habitats are being damaged by public access. In some places it may be possible to extend some valuable habitats.

5.5.5 Loss of wetland and potential impacts on river flow regimes

This issue arose out of specific concerns relating to Dartmoor. During the consultation period we received no information to support the perceived impact. Contact with Dartmoor National Park has also failed to quantify any impact. This issue has been raised with similar lack of results in the Teign Catchment Management Plan produced by Devon Area Environment Agency. We therefore do not propose any specific action over the five year plan period, though we will continue to monitor at established hydrometric gauging stations.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 11: Development and Delivery of Biodiversity Action Plans								
11.1 Continue development and implementation of the Biodiversity Action Plan for Devon's Rivers and Wetlands (Devon's RWBAP).	EN/ DWT/ Agency	U	●	●	●	●	●	The Agency supports BAPs but no new funding can be used.
11.2 Continue support of the Cornwall Biodiversity Initiative to produce actions specific to the Cornish part of the catchment. Report due to be published in early summer 1997.	CWT/ EN Agency	15k	●					Cost indicated is the total project cost to which we have contributed.
11.3 Investigate extent of current and potential floodplain wetlands using Section 105 surveys.	Agency	U	●	●				Our Section 105 surveys will be able to provide much digitised floodplain information.
11.4 Continue production and updating of wildlife inventories.	EN/ RSPB/ CWT/ DWT/ Agency	U	●	●	●	●	●	This would include designation of county wildlife sites in Devon.
11.5 County-wide survey of sand martins.	Devon Birdwatching & Preservation Society	none to Agency	●					

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 12 : Controlling invasive species								
12.1 Assess extent and impact on Agency owned land and draw up appropriate programmes for treatment according to Agency policy and R&D.	Agency	Ongoing	●	●	●	●	●	
12.2 Project to eradicate Giant Hogweed in the catchment.	Agency/ EN Landowners/LPAs	<10k						We will be seeking to secure funds to carry out this project over 4 years.
12.3 Assess extent and impact of other species throughout the catchment and encourage riparian owners to take appropriate action.	Agency/ EN/ Wildlife Trusts/ LPAs/ Landowners	<10k						Low priority action
Issue 13: Identifying key requirements for Special Area of Conservation (SAC) and Special Protection Area (SPA)								
13.1 Carry out baseline desk survey of resource and generate the conservation objectives for the SAC.	EN/TECF/ conservation groups	U	●	●				Consultation will take place on the conservation objectives.
13.2 Review of consents, licences and operations against conservation objectives.	Agency	U		●	●	●		
13.3 Follow up fieldwork as identified by 13.1.	Agency	4k						

5.6 Recreation

Many people spend their spare time enjoying our rivers and coasts. Where we can, we try to improve facilities for these people, particularly if land is in our control, but we must always safeguard the environment from the damage that they might cause. Numerous recreation issues were brought to light in the 1994 survey and 'Tamar 2000' and we will assist in their development wherever we are able.

Access to rivers in the catchment is restricted to existing footpaths and other rights of way. We do not encourage new access routes or promote the use of particular rights of way without the support of landowners and countryside interests. However, we have a general duty to promote the recreational use of water in England and Wales and we will support sensitive access initiatives that respect the interests of local people.

Some of the heavily used recreational sites in the freshwater system could be managed by initiatives by other bodies. We will support any such projects.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 14: Meeting recreational requirements								
14.1 Support the development and implementation of issues in the Tamar Estuaries Management Plan.	Agency	Ongoing	●	●	●	●	●	
14.2 Fund projects.	Agency	1k	●					Funding for project to increase recreational access and waterside information.

5.7 Flood alleviation and control

All rivers are classified as either 'main river' or 'ordinary watercourse' (sometimes referred to as 'non-main river'). We supervise all flood defence matters but have special powers to carry out or control work on main rivers and sea defences. Local authorities also have powers to carry out sea defence work, together with coast protection work, and flood defence on ordinary watercourses.

We operate a flood warning system within the catchment. From 1 September 1996, we took the lead in warning people who are at risk from flooding, so that action can be taken to protect themselves and their properties. Over the next five years we will be improving the warning service so that more information reaches those who need it (Issue 16).

We maintain rivers and flood defence structures to minimise the risk of flooding. To continue to improve the efficiency and effectiveness of this work, we try to target areas of greatest need using a method called 'Standards of Service' (SoS). This method has now been further developed and is to be included as part of the Flood Defence Management Manual (Issue 15). In addition we are collecting information on the condition of river assets to help us to further target our work to those areas of greatest need.

Our database of flood risk locations for potential capital works (S105 Survey) was completed in April 1997. The database will have a secondary use in providing information for Biodiversity Action Plans.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 15: The need for a fully integrated Flood Defence Management Manual and supporting System								
15.1 Develop and implement system.	Agency	137k (across region)	●	●	●			System will be used on a limited basis until further asset surveys are undertaken.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 16: Provide accurate flood warnings								
16.1 Study into the level of service for flood warning.	Agency	15k	●	●				This study uses the output from Section 105 surveys. It is intended to contact all recipients on the database at least once a year. Active participation and liaison by recipients of warnings is welcomed and encouraged.
16.2 Update, enhance and maintain flood warning database.	Agency	Part of regional cost	●	●	●	●	●	

5.8 Development control to minimise flooding

We are required by the Department of the Environment Circular 30/92 'Development and Flood Risk', to liaise closely with local planning authorities on flooding and surface water runoff matters. This ensures that consideration of the flood defence risks of development is an integral part of the decision making process. In this respect we have the responsibility to prepare surveys under Section 105 of the Water Resources Act 1991 to define the nature and extent of flood risks. An indicative floodplain survey has been carried out for this catchment, but this does not contain a high degree of detail and further analysis of specific locations is to be carried out. Information is provided to the local planning authorities to prevent inappropriate development in the floodplain. Maps covering areas of main river have been completed. Ordinary watercourses may receive coverage, following discussion with LPAs.

We are working in partnership with Plymouth City Council to promote the management of surface water runoff from new development, especially in the Forder Valley. A video on source control, 'Nature's Way,' has been produced by the Agency and is available to planning authorities and other interested groups. The Seaton Barracks site is one such place where surface water runoff could be managed by alternatives to surface water sewers.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 17: Flooding downstream from existing and new development								
17.1 Maintain an up-to-date record of locations at risk of flooding and of catchments where additional development could increase the risk.	Agency	<1k/year	●	●	●	●	●	
17.2 Advice to LPAs on development to prevent increase in flood risk.	Agency	U	●	●	●	●	●	

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 18: Possible impact of development on ground and surface waters in Plymouth								
18.1 Promote infiltration in new developments.	All actions: Agency/ Plymouth City Council	Ongoing	●	●	●	●	●	
18.2 Surveying to measure current flow conditions.		7k	●	●				
18.3 Carry out baseline biological surveys.		U						

5.9 Erosion and coastal change

We are a member of the Cornwall and Lyme Bay & South Devon Coastline Groups which includes other coastal defence bodies. These groups are overseeing the production of Shoreline Management Plans for the Lyme Bay and South Devon Coastline to Rame Head and from Rame Head to the Lizard. The plans ensure that coastal defences take full account of coastal processes. Investigation studies will be undertaken and wide consultation will take place prior to the adoption of the plan.

Erosion is a natural process. Rivers and coastline change as the forces of water shape the land. We now operate to the presumption that natural river or coastal processes should not be disrupted, except where people or important natural or manmade assets are at risk. Riparian owners have the right in common law, to repair their banks and protect land from the effects of erosion, as long as this is accomplished without injury to the property of others and does not cause obstruction to flow. However, they will require consent from us and we will seek to ensure that appropriate methods and material are used as previous works have sometimes had significant detrimental effects on the river morphology, wildlife and landscape. We can provide guidance, as contained in the 'New Rivers and Wildlife Handbook' (Ref. 4). Where erosion control is necessary we will encourage early control by landowners, using traditional methods and materials where possible, to avoid the need for extensive and more environmentally damaging works later. We will also encourage the reinstatement of areas where insensitive practices have been used. We will only use public funds to control erosion if the watercourse is 'main river' and if certain criteria are satisfied.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 19: The need to understand coastal processes								
19.1 Develop Lyme Bay & South Devon Shoreline Management Plan.	West Dorset District Council	21k	●	●				
19.2 Develop Rame Head to Lizard Shoreline Management Plan.	Kerrier District Council	29k	●	●				

5.10 Fisheries management

We have taken over the Strategy for the Management of Salmon, launched by the NRA in February 1996 (Ref. 5). Salmon Action Plans will be developed for all salmon rivers in England and Wales with the following aims: safeguarding salmon stocks, maximising economic/social benefits, and ensuring long term improvements. Each Plan will: describe the fishery and how it is performing; identify the key issues in each river system; set fishery targets and fishing effort controls and outline a programme of improvement. We intend to develop Salmon Action Plans for the Rivers Tamar and Lynher by 1997, the River Tavy by 1998 and the Rivers Plym and Yealm by 2001.

5.10.1 Status of fish stocks

Most of the catchment rivers support good quality fisheries although it is perceived that stocks are diminishing. We will work with local fisheries associations to investigate the current status of stocks.

Some investigations into the oxygen sags in the Upper Tamar Estuary have taken place and estuarine water has been monitored in exceptionally dry weather. Low Dissolved Oxygen can develop under conditions of low river flow, high temperature and tidal range. The primary mechanism is the tidal resuspension of fine sediment. Use of a Roadford fisheries water bank release to encourage salmonid migration into freshwater was the mitigating factor identified by these studies.

We have insufficient knowledge of eel populations to enable sustainable management at present. Our routine work includes collection of data and bioaccumulation studies of eel tissues.

5.10.2 Improving Spawning Gravels

Two areas of concern have been identified that could account for lower than expected salmonid production: lack of gravel and suitability of gravel. Assessment and prioritisation of sites that could benefit from remedial work is underway although the actions required will depend upon funding. Continued monitoring of areas of improvement will take place through the routine fish survey programme.

5.10.3 Construction of instream structures (croys)

A review of current legislation and procedures for handling applications for the construction of instream structures has been undertaken. We are looking to produce guidelines in 1997/98.

5.10.4 Barriers to migratory fish

We need to identify and prioritise obstructions which may be holding back the development of the fishery. In addition to improving access, attention needs to be paid to the maintenance of structures so that they remain passable. In most cases we will have difficulty in funding the installation of fish passes. We will be largely dependent upon external funding or collaborative projects to ensure their completion.

Part of our core work involves removal of total blockages preventing passage of fish or impacting spawning gravel following identification on routine inspections.

A national review of design criteria for screens at abstraction points has been produced. The recommendations will be used in any abstractions we build or authorise to minimise loss of fish.

5.10.5 Natural Predation

It is widely accepted in angling circles that in recent years there has been a marked increase in predation by fish-eating birds on freshwater fisheries. Anglers on the catchment rivers are no exception and believe the numbers of

cormorants observed frequently in the middle and lower reaches of the river are a cause for concern. Freshwater fish species are vulnerable to predation by birds and are thought to be taken by cormorants at various locations in the catchment. We shall not support licensed killing of fish-eating birds, until and unless proof of serious damage has been established, and killing proven to be the most effective means for preventing significant loss to fish stocks. There was limited response on this issue during consultation and limited Agency responsibility. Relevant responses have been handed to MAFF.

5.10.6 Enforcement

The number of fish entering the rivers is linked to levels of salmonid poaching in the estuaries and adjacent coastal waters with gill nets. Prior to the 1980s, this was a major issue and large numbers of nets were operated in the estuaries and along the coast ostensibly for the capture of sea fish. Changes in legislation have resulted in the creation of areas closed to netting, which, with the current level of enforcement, have reduced illegal capture in tidal waters.

Rigorous and high profile enforcement continues as a joint initiative between ourselves, MoD, MAFF and DSFC. Rod licence income is essential for maintaining protection of rivers and fish stocks. We will continue to run campaigns to publicise the need for rod licences and will enforce any breach of the rules.

5.10.7 Introduced and escaped fish

We are concerned about the occurrence and impact of fish escapees on native species and our routine work involves inspecting the stillwater lakes in the catchment. We carry out inspections of stillwater fisheries and monitor non-native escapees recorded during our core fisheries work.

5.10.8 Fisheries byelaw review

This is work which needs to be undertaken in order to protect fisheries in the light of legislation changes, such as the Environment Act 1995 which includes opportunities for conservation of fish stocks. It is a national requirement but no timetable has been set for implementation. Any work would require the involvement of Devon Sea Fisheries Committee and MAFF and public consultation.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 20: Rod catches lower than expectations on the Rivers Tavy, Plym, Lynher and Yealm								
20.1 Investigate whether this is due to reduced salmon numbers.	Agency	100k As 6.2	●	●	●	●	●	Initial delivery of this action is the placement of a fish counter on the River Tavy.
20.2 Salmon Action Plans to be produced: Plym Yealm Tavy Lynher.	Agency	U				●	●	The Salmon Action Plans will also investigate the decline in catch of multi sea winter salmon (including spring salmon) and sea trout.
20.3 River Tavy - prevention of potential over-exploitation of salmon by licensed netting.	Agency	U						MAFF have instructed the Agency to investigate this issue and undertake appropriate actions.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
20.4 Investigate possible byelaws to increase escapement of multi sea winter fish.	Agency	U						

Issue 21: Insufficient age class data for adult salmon and sea trout particularly on the Rivers Plym, Yealm & Lynher

21.1 Further scale reading to investigate adult population trends in stock abundance.	Agency/ Anglers	Ongoing	●	●	●	●	●	We need scales from fish caught (and not returned) by anglers
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Issue 22: Protection of endangered fish species and their spawning habitat

22.1 Recommend appropriate action to netmen for protected and nationally rare fish species.	Agency	2k	●	●	●	●	●	We will prepare a guidance pack to be sent to netmen.
22.2 Further study, monitoring recording of these species.	DSFC/EN/ MAFF/ Agency	U						

Issue 23: Improve spawning gravels

23.1 Import spawning gravel at: below Burrator dam and River Tavy from Tavy Cleave to Coffin Wood.	Agency	50k						No planned action, resources unavailable at present.
23.2 Investigate need for remediation work on Plym, Yealm and Lynher, including weed at Trewint works.	Agency	2k	●					Investigation will recommend costed options.

Issue 24: Inappropriate construction and location of croys

24.1 Prepare a guidance policy on construction and positioning of croys.	Agency	U	●	●				We have undertaken a review of relevant legislation and existing agency procedures for applications to build croys.
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Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 25: Obstructions to fish migration requiring improvement or maintenance								
25.1 Complete survey of manmade obstructions/ weirs.	Agency	10k	●	●	●	●	●	Sites listed in Consultation Report will be reviewed and a report on feasibility and benefit of undertaking work produced.
25.2 Detailed site appraisal and design of fish passes or by-pass channels.	Agency	2k/site						Work dependent on funds becoming available.
25.3 Maintain River Tavy weirs.	Owners	U						
Issue 26: Loss of salmonids at abstraction points								
26.1 Assessment of impact at Ditsworthy Warren Leat.	Agency	10k						No resources available for these assessments.
26.2 Assessment of impact on Lynher.	Agency	10k						

5.11 Waste management

There is a requirement on the Agency to produce a regional strategy to outline the current and future needs for waste management based on the nature and quantity of waste arising. The Agency, local planning authorities, industry and environmental organisations can plan, inform and encourage with a view to moving up the waste hierarchy from disposal through to waste recovery and to the main aim of minimisation. County Councils as waste planning authorities will prepare Waste Local Plans to ensure the provision of adequate disposal or treatment facilities on suitable sites.

A Consultation Draft Strategy produced by Devon County Council in October 1996 identified the following options for future waste management for Plymouth and West Devon: minimisation and education, Recycling through a Materials Reclamation Facility, Composting, a waste to energy incinerator and landfill. Plymouth City Council have set themselves a target of 75% recycling of household and commercial waste by the year 2000.

A Draft Consultation Strategy produced by Cornwall County Council in autumn 1996 identified two scenarios for managing waste in East Cornwall. These included the provision of local recycling centres, composting sites, Material Recovery Facilities, civic amenity sites, one waste to energy plant and additional landfill capacity.

Leachate escaping from Crowndale Tip site (identified in the Consultation Report) is still having a localised impact on the River Tavy. Devon County Council, who own and operate the site, have not yet committed funds to solving the problem. We will be seeking this commitment through the five year period of this Action Plan.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
Issue 27: The need for a regional waste strategy								
27.1 Undertake waste arisings survey.	Agency	U	●					Data from the waste arisings survey will inform the strategy.
27.2 Draw up strategy.	Agency	U						
Issue 28: The need for reduction in waste production and the proportion going to landfill								
28.1 Stimulate waste minimisation initiatives.	Agency/ Business/ environmental organisations	Ongoing U	●	●	●	●	●	
28.2 Development of waste recovery facilities.	County and District Councils/ Industry	U						

5.12 Oil spills

It has been identified that there is a need to review existing contingency plans to enable rapid and effective response to an oil spill incident outside the commercial harbour authority areas. Such potential spills could come from land or water borne sources inside or outside the estuary. Although those responsible have an existing contingency plan, it will need to be significantly reviewed and many measures strengthened given the estuary's recent designation under the European wildlife directive and following local government reorganisation in the area.

A working group comprised of English Nature, Environment Agency, Ministry of Defence, County and City Councils has already been established. The principal areas for future plan development include:

- Sensitivity mapping and proposed associated clean up methods - which highlights areas vulnerable to oil spills and proposes appropriate agreed clean up methods,
- Booming - arising from the above, static booming points along the shore and to a limited degree within the estuary need to be established and maintained,
- Contingency planning - setting out agreed courses of actions under different circumstances and tested as appropriate.

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
NEW Issue 29: The need for an Oil Spill Contingency Plan								
29.1 Undertake sensitivity mapping and propose associated clean-up methods.	Agency/ EN/ County & City Councils, Royal Navy	15k	<div><div></div></div>					

Action	Lead Body	Cost to EA (£)	Financial Year					Notes
			97	98	99	00	01	
29.2 Establish booming and anchoring points and establish maintenance regime.	As 29.1	10k	●	●				Matching European funds have been secured.
29.3 Revise and test (as appropriate) existing contingency plan.	As 29.1	U		●	●	●	●	

5.13 Contaminated land

The Environment Act 1995 (Ref 6) contains new provisions for dealing with contaminated land; local authorities are the key regulators under the Act with the Agency acting as a consultee and advisor. The new provisions will be enacted in 1997 and will define contaminated land as any land which appears to a local authority to be in such a condition - because of the substances it contains - that either water pollution or significant harm is being, or is likely to be caused. This interpretation is subject to guidance issued by the Secretary of State. Local authorities will be required to carry out a survey to identify contaminated land in its area. When these surveys have been carried out we have a duty to prepare and publish a report on the state of contaminated land from time to time, or if specifically requested to do so by the Secretary of State. Some sites may be designated as 'special sites'; these will become our responsibility. Special sites include those which will, or are likely to, cause serious water pollution, because of the substances in or under them. It is made clear in the draft Statutory Guidance that contaminated sites should continue to be remediated wherever possible on a voluntary basis or through the normal development planning process and existing pollution legislation, whereby we can prosecute if pollution is actually occurring, or take action to effect clean up or pollution prevention, with cost recovery from the polluter or landowner. For those sites not meeting the more rigid new definition in the Guidance, these will be the only routes for clean up that remain available.

The precise nature and full extent of contaminated land, as defined by the statutory guidance, within this catchment is not yet known, since the contamination of many sites is only realised when they are redeveloped or when pollution actually occurs. There is a need to clarify the status of contaminated land sites in the catchment.

The other main potential cause of contamination within the catchment is industry, which, due to the rural nature of much of the catchment, is largely concentrated in current and former industrial estates. However, it should not be forgotten that a large number of non-industrial activities have the potential to cause contamination, for example agriculture; petrol filling stations or even domestic oil storage.

5.14 Devonport Dockyard

Concerns have been raised on the impact of Devonport Dockyard on the local environment, particularly perceived effects from nuclear refit work.

The disposal of liquid radioactive waste from Devonport Royal Dockyard Limited is controlled through a Certificate of Authorisation issued by the Agency under the Radioactive Substances Act 1993. Failure to comply with conditions in such authorisations is an offence under Section 32 of the Act.

The limits set in the authorisation are at a level to ensure that any effects of the

discharges would be environmentally acceptable and the radiological impact on members of the public would be within national and international dose limits.

In order to monitor the effect of liquid radioactive waste discharges on the marine environment, DML are required to carry out a radiation monitoring and sampling programme which is carried out in conjunction with the Defence Radiological Protection Service (DRPS) and agreed with MAFF and the Agency. The latest results show that there has been no significant radiological hazard to any member of the general public from operations carried out by DML.

5.15 Air quality

The Cornwall Air Quality Forum has been formed as one of 14 pilot study areas nationwide. It is led by Carrick District Council and has representation from all local authorities in the county and the Agency. The Forum has been funded by the government to:

- review and assess government guidance on air quality strategy, its appropriateness, requirements and applicability. They intend to do this through producing a strategy;
- carry out assessment of monitoring techniques for PM10s (fine dust) at a china clay quarry site.

A contract has been let to complete this work by September 1997. Actions that come out of the pilot study may show the way forward to deal with air quality issues in the area and region.

6. Implementing the Plan: Monitoring and Review

We are jointly responsible, with other identified organisations and individuals, for implementing this Action Plan.

Progress will be monitored on a regular basis and reported annually in a review document that we will distribute to all the key partners and the Catchment Steering Group. This group has been formed by us from those individuals and groups with an interest in the catchment. The Catchment Steering Group represents a range of commercial, Local Authority and environmental interests who support the Consultation Report and Action Plan prior to public release (see Acknowledgements for list of members). They will monitor the implementation of the Action Plan and provide us with specific advice on the importance of issues within the catchment. They act as a link between the local community, ourselves and our committees and will help to promote and develop initiatives of benefit to the environment within the catchment. Copies of the Annual Review will also be available to the public.

Annual Reviews will:

- detail the progress of the work shown in the activity tables;
- identify additional actions required in the light of changes in the catchment.

APPENDIX 1

THE ROLE OF THE ENVIRONMENT AGENCY

Flood Defence has the role of protecting people and the developed environment from flooding by providing effective defences and protection of floodplains. Safeguarding life is our highest priority and to meet this aim we provide a flood forecasting and warning service. Flood Defence also aims to protect and enhance the natural environment by promoting works that are sustainable and work with nature.

The **Water Resource** function comprises the conservation, redistribution and augmentation of surface and groundwater supplies. It includes the powers to encourage water conservation and to promote transfer schemes and to balance the needs of water users and the environment by issuing licences for users to abstract water from rivers and boreholes.

The **Pollution Control** function includes :

- Integrated Pollution Control (IPC) regulating the most polluting, or technologically complex, industrial and other processes in air, on land or in water.
- Water quality and pollution control which prevents and controls pollution and monitors the quality of rivers, estuaries and coastal waters.
- Radioactive Substances regulating the disposal of radioactive material, including that from licensed nuclear sites, and regulating the accumulation, keeping and use of radioactive materials, except from licensed nuclear sites.
- Waste Regulation setting consistent standards for waste management practice to regulate the treatment, storage, movement and disposal of controlled waste. The Agency also has a requirement to register and monitor those who produce waste imposing obligations to reuse, recover or recycle products and materials.
- Reporting on the extent of contaminated land and contributing to its management (primarily undertaken by local authorities).
- Working with abandoned mine operators so that steps can be taken to prevent minewater pollution now and in the future.

The Environment Agency is responsible for maintaining, improving and developing **Fisheries**. This is carried out by licensing, regulation and enforcement schemes which cover salmon, sea trout, non-migratory trout, coarse and eel fisheries. The Agency also carries out improvements to fisheries by improving the habitat, fish stocks and providing advice to fishery owners.

The Agency must also take account of **Recreation** and access. Over 1000 sites in our control are managed for recreational use. We also have a general duty to promote the recreational use of water and land throughout England and Wales. In fulfilling all its functions the Environment Agency is also required to contribute to the **Conservation** of nature, landscape and archaeological heritage. We have a *regard* to conserve and enhance flora, fauna, geological or physiographical features when carrying out our pollution control functions, and a duty to further conservation when carrying out our other functions. We also have a duty generally to promote the conservation of flora and fauna dependent on the aquatic environment.

We do not cover all aspects of environmental legislation and service to the general public. Local authorities deal with all noise problems, litter and air pollution arising from vehicles, household areas, small businesses and small industries. Planning permission is also the responsibility of the local authorities who will contact us when necessary. The local authorities also deal with contaminated land issues in liaison with us. Environmental Health issues should also be directed to them.

APPENDIX 2

CONSULTEES WHO RESPONDED TO CONSULTATION

National Organisations

British Marine Industries Federation
 Countryside Commission
 English Nature
 Federation of Water Borne Leisure Activities
 Forestry Commission
 HM Naval Base Devonport
 Ministry of Defence
 National Farmers Union
 Nautical Archaeology Society
 Ramblers Association
 Royal Commission on the Historical Monuments of England
 Royal Society for the Protection of Birds
 Royal Yachting Association
 Shellfish Association of Great Britain
 South West Regional Sports Council
 Tidy Britain Group

Regional and Local Organisations and Businesses

CAMAS Aggregates
 Calstock Boat Owners Association
 Clean Rivers Trust
 Cornish Chamber of Mines
 Cornwall Archaeological Unit
 Devon Bird Watching & Preservation Society
 Devon Conservation Forum
 Devon Wildlife Trust
 Duchy of Cornwall
 English China Clay International
 Glenholt Residents Association
 Liskeard & District Angling Club
 Mount Edgecumbe Estate
 Plymouth Groundwork Trust
 Plymouth Swimming Association
 Plympton St Maurice Civil Association
 Radford and Hooe Lake Preservation Association
 Rame Peninsula Fishermans Association
 South West Federation of Sea Anglers
 Tamerton Foliot Conservation Society
 Tavistock Fish Farm
 Torpoint Moorings Association
 Torpoint Slipping Co. Ltd.
 Watts, Blake and Bearn
 Wessex Archaeology

Local Authorities

Altarnun Parish Council
 Burrator Parish Council
 Calstock Parish Council
 Maker with Rame Parish Council
 Plymouth City Council
 Saltash Town Council
 South Hams District Council
 Torpoint Town Council
 Wembury Parish Council

A further 33 written responses, including questionnaires, were also received from members of the public. Other comments were received at the open days.

APPENDIX 3

RIVER QUALITY OBJECTIVES

The Environment Agency has set water quality targets for all rivers. These targets are known as **River Quality Objectives (RQOs)**, introduced in May 1994, and are used for planning the maintenance and improvement of river water quality. RQOs establish a defined level of protection for aquatic life. Achieving RQOs will help to sustain the use of rivers for recreation, fisheries and wildlife, and protect the interests of abstractors. RQOs provide a basis for setting consents to discharge effluent into rivers, and to secure investment for improvements to the quality of discharges. They also guide decisions on the Agency's other actions to control and prevent pollution. The water quality classification scheme used to set RQO planning targets is known as the **River Ecosystem** scheme. The River Ecosystem scheme replaces the **National Water Council (NWC)** scheme, which was first introduced in the late 1970s.

The River Ecosystem Scheme

The River Ecosystem scheme provides a nationally consistent basis for setting RQOs. The scheme comprises five classes which reflect the chemical quality requirements for communities of plants and animals in our rivers. The standards defining these classes reflect differing degrees of pollution by organic matter and other common pollutants.

River Ecosystem classes can be summarised as follows:

- 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 population.

The River Ecosystem scheme takes forward the core standards from the old NWC scheme, but also incorporates new standards and firm rules on how the scheme should be applied. These are described in detail in the document *Water Quality Objectives: Procedures used by the National Rivers Authority for the purpose of the Surface Waters (River Ecosystem) (Classification) Regulations 1994*, available from the Water Quality Planning departments at our Regional Office in Exeter. Current and long term River Quality Objectives for stretches of the Rivers Lynher, Tavy, Plym and Yealm are shown on Map 2.

APPENDIX 4

BIODIVERSITY ACTION PLANS

All these species and habitats have been listed in the UK Biodiversity Action Plan, 1995, as needing specific conservation measures to ensure their survival.

Species which occur in the catchment and are directly related to the water environment, and for which National Action Plans have been written:

- i) **Water Vole** (a mammal). Has many actions identified in Devon's RWBAP. Need to clarify current distribution in this catchment.
- ii) **Otter** (a mammal). Has many actions identified in Devon's RWBAP. Catchment known to be important for this species.
- iii) **Allis Shad** (a fish). Has been recorded from estuary, but status needs clarifying.
- iv) **Marsh Fritillary** (a butterfly). Has many actions in Devon's RWBAP. Need to clarify current distribution in the catchment - thought to occur on Dartmoor.
- v) **Marsh Earwort** (a liverwort). Listed on Schedule 8 of Wildlife & Countryside Act. One of last known UK populations is Witheybrook on Bodmin Moor.
- vi) **Shore Dock** (a vascular plant). Listed on Schedule 8 of Wildlife & Countryside Act. One of its strongest UK populations occurs near Rame Head.
- vii) **Southern Damselfly** (an insect). Has been found on North Dartmoor recently - need to clarify current distribution.

Habitats which occur in the catchment and are directly related to the water environment, and for which costed National Action Plans have been written:

- i) **Reedbeds**. Has a number of actions within Devon's RWBAP, although these relate mainly to freshwater reedbeds. The Tamar Complex supports one of the largest estuarine reedbeds in Devon and Cornwall. A review of Flood Defence provision may highlight areas for potential extension of the habitat. At least one Red Data Book bird breeds here - Cetti's Warbler.
- ii) **Saline Lagoons**. Two of only eighteen saline lagoons in Cornwall are found here.
- iii) **Fens**. Bodmin Moor and Dartmoor have important areas of fen habitat.
- iv) **Coastal and Floodplain Grazing Marsh**. Has actions within Devon's RWBAP. Although not a core area for this habitat, there are likely to be opportunities for habitat extension through Flood Defence review, for example.
- v) **Purple Moor Grass and Rush Pastures**. May be examples on Dartmoor.
- vi) **Seagrass Beds** Recorded from Plymouth Sound at the entrance to Yealm Estuary.

Species which occur in the catchment and are directly related to the water environment, for which National Action Plans are planned but not yet written:

- i) **Reed bunting**
- ii) **Other fish species** - Twaite Shad, Sturgeon
- iii) **Triangular Club-rush**
- iv) **Invertebrates** not yet assessed

Habitats which occur in the catchment and are directly related to the water environment, for which National Action Plans are planned but not yet written:

- i) **Rivers and Streams**
- ii) **Maritime Cliff and Slope**
- iii) **Boulders and Rock Above High Tide**
- iv) **Coastal Strandline**
- v) **Saltmarsh**
- vi) **Estuaries**
- vii) **Inlets and Enclosed Bays**
- viii) **Open Coast**
- ix) **Open Sea Water Column**

Other key species which occur in the catchment, are related to the water environment, but for which there is currently no plan to produce Action Plans, for example:

- i) Basking Shark
- ii) Cormorant and Shag
- iii) The Star Coral *Balanophyllia regia*.
- iv) Harbour porpoise.

APPENDIX 5

GUIDE TO CONSULTATION REPORT AND ACTION PLAN ISSUES

Consultation Report Issue		Reference in this Action Plan
1	Effect of STWs on water quality	
1	Marginal failure of RQO in the River Yealm.	Issue 1
2	Failure to comply with long term RQO in the River Tavy and EC Freshwater Fish directive.	Issue 1
3	Failure to comply with long term RQO in the Kelly Brook due to Callington STW.	Issue 1
4	Poor quality effluent from Brixton STW.	5.1.6
2	Unknown sources of BOD (organic enrichment) affecting water quality, and organic enrichment/decreased pH impacting on invertebrate communities	
1	River Yealm from above Yealmpton STW to the NTL failed to comply with long term RQO.	Issue 2
2	River Tavy from Harford Bridge failed to comply with its long term RQO due to elevated BOD.	Issue 3
3	Invertebrate communities on the Tamerton Foliot Stream impacted by organic enrichment.	5.1.5
4	Invertebrate communities on the Haye Valley Stream impacted.	Issue 1
3	Effect of storm sewer overflows on water quality.	Issue 1
4	Non-compliance with EC Bathing Water Directive standards.	Issue 2
5	Exceedence of EQS for tributyltin in the River Yealm downstream of the discharge from International Paints.	Issue 3
6	Low pH and elevated zinc concentrations downstream of china clay works and the impact of china clay discharges on invertebrate communities.	Issues 2 and 3
7	Exceedence of copper and zinc EQSs downstream of Crowndale and Ernesettle STWs.	Issue 3
8	Determine whether the Lynher Estuary is a sensitive area under the UWWTD.	5.1.2
9	Oxygen sags in Upper Tamar Estuary leading to fish deaths.	5.10.1
10	Operation and management of public water supply during droughts.	Issue 4
11	Meeting future public water supply demand.	Issue 5
12	Effects of abstraction on salmonids in the River Tavy.	Issue 6
13	Unnatural flow regimes affecting angling conditions on the River Tavy.	5.3
14	The need to balance flows between the River Tavy and hydropower abstractions.	Issue 7
15	Deprived reach below Tavistock Fish Farm abstraction.	Issue 8
16	The need to review priority of low flow sites in the catchment.	Issue 9
17	The need to protect and enhance the riparian strip.	5.5.2
18	Develop the protection of existing wetlands and actively seek opportunities to recreate wetland habitats.	Issue 11
19	Loss of wetland and potential impacts on river flow regimes.	5.5.5

	Consultation Report Issue	Reference in this Action Plan
20	Perceived impact of development on ground and surface waters in Plymouth.	Issue 18
21	The need to identify key species and habitat requirements for SAC and SPA.	Issue 13
22	The need to develop and deliver biodiversity actions.	Issue 11
23	Unsuitability or lack of spawning gravels reducing salmonid production .	Issue 23
24	Inappropriate construction and location of instream structures.	Issue 24
25	Obstructions to fish migration requiring improvement or maintenance.	Issue 25
26	Loss of salmonids at abstraction points.	Issue 26
27	Rod catches lower than expectations on the Rivers Tavy, Plym, Lynher and Yealm.	Issue 20
28	Decline in catch of multi sea winter salmon (including spring salmon) and sea trout.	Issue 20
29	Insufficient age class data for adult salmon and sea trout particularly on the Rivers Plym, Yealm and Lynher.	Issue 21
30	Insufficient knowledge of eel populations to enable sustainable management.	5.10.1
31	Illegal exploitation of salmonids and juvenile bass.	5.10.6
32	Loss of income due to rod licence evasion.	5.10.6
33	The need for a review of sea fisheries byelaws and increased publicity of fisheries regulations in the Tamar Estuary.	5.10.8
34	Natural predation of fish stocks .	5.10.5
35	Introduction of non-native fish species into freshwater and the marine environment.	5.10.7
36	Protection of endangered fish species and their spawning habitat.	Issue 22
37	General decline in the mollusc community (particularly bivalves) at monitored sites.	Issue 3.7
38	Effect on macro invertebrates of organic enrichment in the vicinity of Devonport Dockyard.	Issue 3
39	Assess the extent and impact of invasive species.	Issue 12
40	The need for assessment of the historic environment of the whole catchment.	Issue 10
41	To assist in the development of the numerous recreation issues brought to light in the 1994 survey and 'Tamar 2000', wherever we are able.	Issue 14
42	Environmental impact at heavily used recreational sites in the freshwater system.	5.6
43	The need for a fully integrated Flood Defence Management Manual and supporting System.	Issue 15
44	Identification of flood risk to Planning Authorities. This should take account of the timetable for preparing district wide Local Plan(s) .	5.8
45	Flooding downstream from existing and new development.	Issue 17

Consultation Report Issue

Reference in this
Action Plan

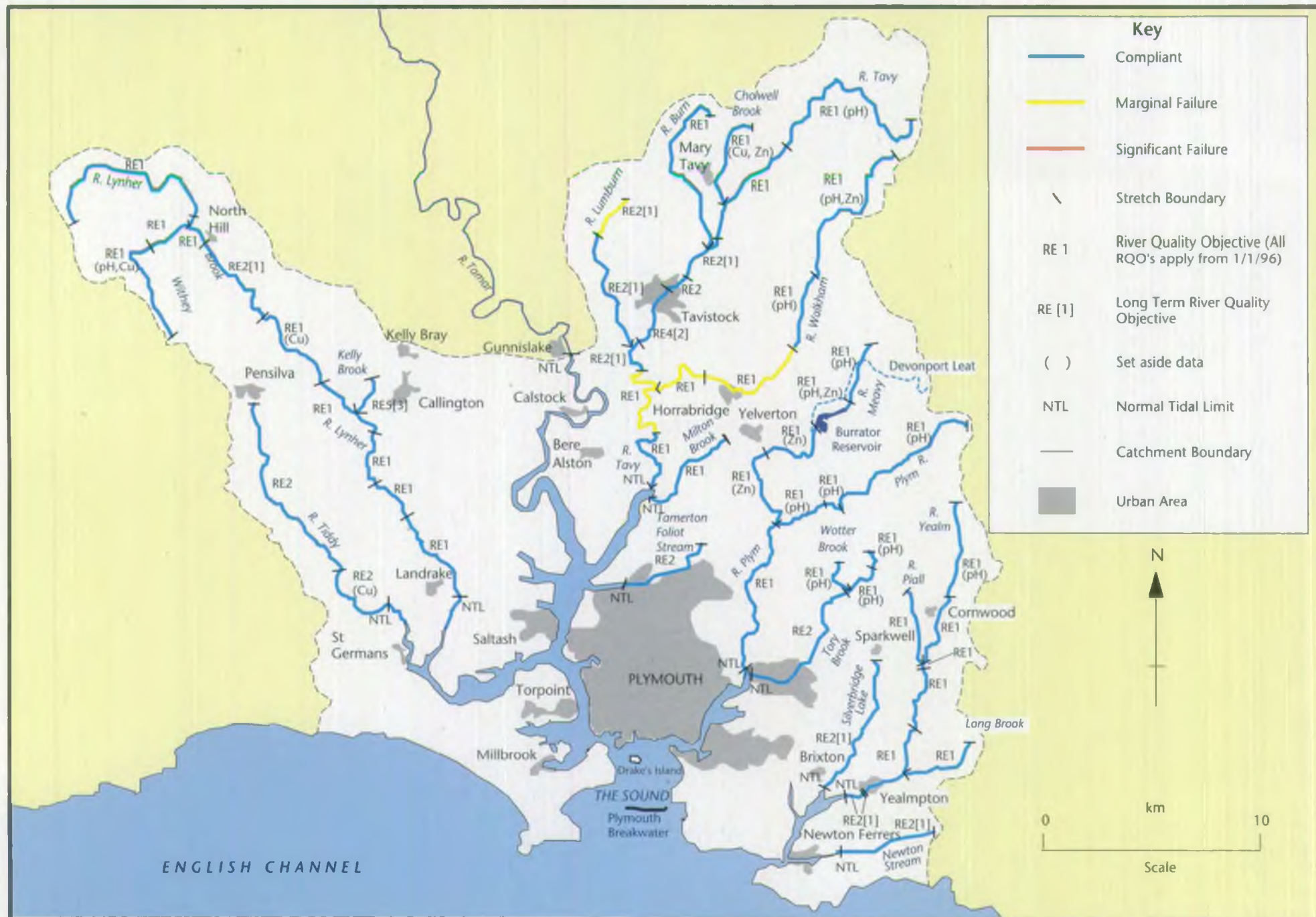
46	Need to update Agency database of flood risk locations for potential capital works .	5.7
47	The need to understand how the coastline is changing.	Issue 19
48	To provide accurate flood warning to enable emergency organisations to respond and to safeguard life and property.	Issue 16
49	The need to provide the general public and other organisations with accurate flood warnings.	Issue 16
50	Regular updating of the flood warning database and procedures.	Issue 16
51	The need for a regional waste strategy.	Issue 27
52	The need for reduction in waste production and the proportion going to landfill.	Issue 28

REFERENCES

1. Tamar Estuary and Tributaries Local Environment Agency Plan, Consultation Report, Environment Agency, July 1996, SW-7/96-1k-E-AVDO.
2. Tomorrow's Water, South West Regional Water Resources Development Strategy, NRA South Western Region, April 1995. SW-4/95-1k-B-ANOQ.
3. A Biodiversity Action for Devon's Rivers and Wetlands, Consultation Draft, June 96, Devon Wildlife Trust.
4. New Rivers and Wildlife Handbook, RSPB, reprinted 1995.
5. Strategy for the Management of Salmon in England and Wales, NRA, February 1996.
6. Environment Act 1995. HMSO.

ABBREVIATIONS

AMP3	Asset Management Plan
BAP	Biodiversity Action Plan
CWT	Cornwall Wildlife Trust
DoE	Department of the Environment
DML	Devonport Management Limited
DSFC	Devon Sea Fisheries Committee
DWT	Devon Wildlife Trust
EC	European Commission
ECCI	English China Clay International
EN	English Nature
EQS	Environmental Quality Standard
HMIP	Her Majesty's Inspectorate of Pollution
IPC	Integrated Pollution Control
LEAP	Local Environment Agency Plan
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
NRA	National Rivers Authority
OFWAT	Office of Water Services
R & W BAP	Rivers and Wetlands Biodiversity Action Plan
RQO	River Quality Objectives
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SoS	Standards of Service
STW	Sewage treatment works
SWW	South West Water
TBT	Tributyltin
TECF	Tamar Estuaries Consultative Forum
WRA	Waste Regulation Authority
U	Unknown (cost)



map 2

Fold out for Map 2
1995 Compliance with Proposed River Quality Objectives

MANAGEMENT AND CONTACTS:

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

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

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS12 4UD
Tel: 01454 624 400 Fax: 01454 624 409

ENVIRONMENT AGENCY REGIONAL OFFICES

ANGLIAN

Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

SOUTHERN

Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

NORTH EAST

Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

SOUTH WEST

Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

NORTH WEST

Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

THAMES

Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

MIDLANDS

Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

WELSH

Rivers House/Plas-yr-Afon
St Mellons Business Park
St Mellons
Cardiff CF3 0LT
Tel: 01222 770 088
Fax: 01222 798 555



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

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

0645 333 111


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

ENVIRONMENT AGENCY EMERGENCY HOTLINE

0800 80 70 60



**ENVIRONMENT
AGENCY**



Regional Headquarters:
Manley House
Kestrel Way
Exeter EX2 7LQ
Tel 01392 444 000
Fax 01392 444 238

All enquires to:
Darragh Turley
Sir John Moore House
Victoria Square
Bodmin
Cornwall PL31 1EB
Tel 01208 78301
Fax 01208 78321