



local environment
agency plan

TAMAR ESTUARY & TRIBUTARIES

FIRST ANNUAL REVIEW

JULY 1998





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**Tamar Estuary and Tributaries
First Annual Review**

July 1998

ENVIRONMENT AGENCY



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Further copies of this Action Plan can be obtained from:

Team Leader, LEAPs
Environment Agency
Sir John Moore House
Victoria Square
Bodmin PL31 1EB

Tel: 01208 78301 Fax: 01208 78321

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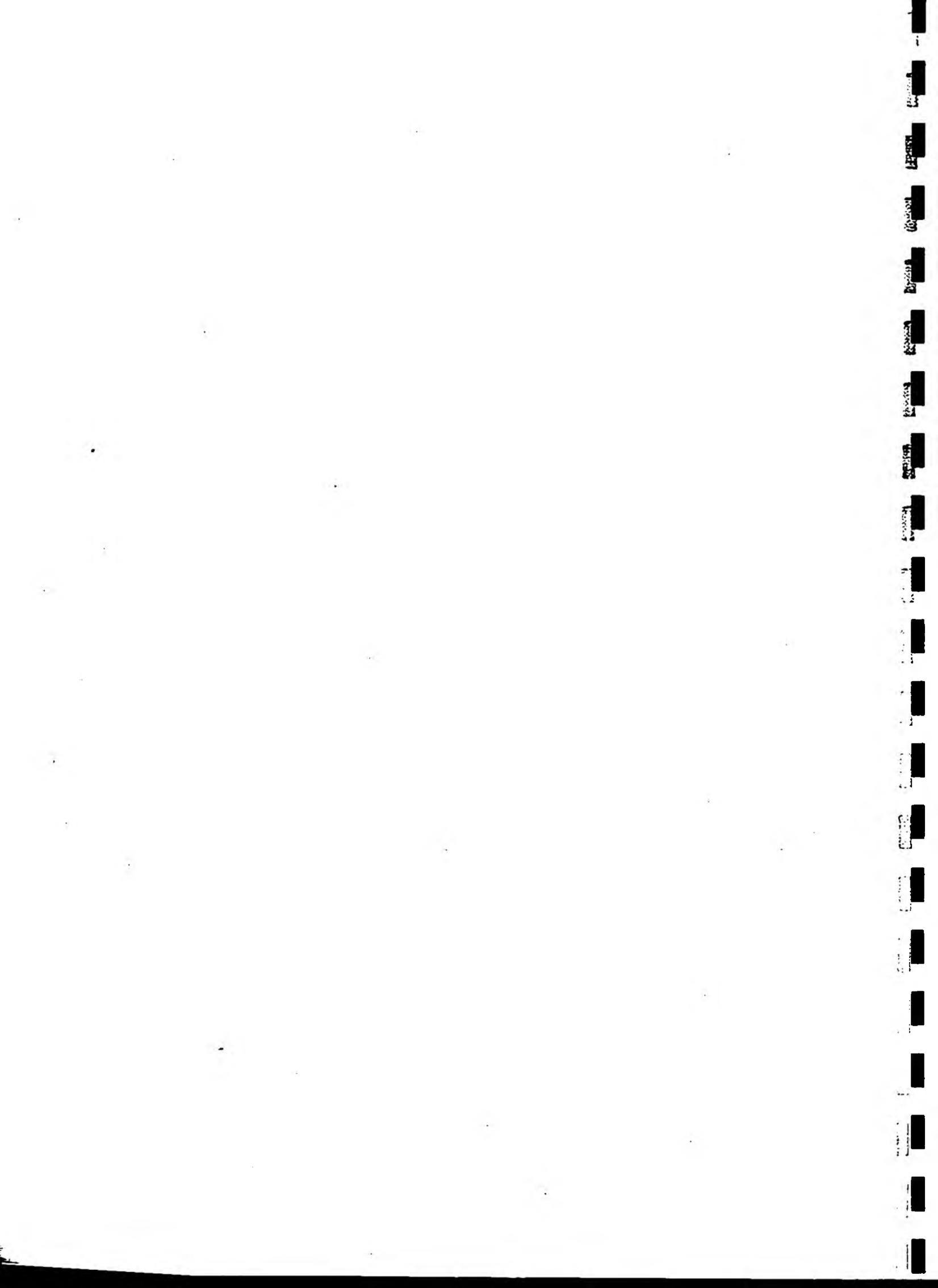


Foreword

This is the first annual review of the Tamar Estuary and Tributaries Action Plan which was published in May 1997. It describes the progress that has been made over the past year.

In addition to our own actions in the plan area we welcome opportunities to work 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)





Contents

Tamar Estuary and Tributaries - First Annual Review

Foreword:		iii
Contents		iv
Acknowledgements		v
Catchment Vision		vi
1. Introduction:		2
1.1	The Environment Agency	2
2. Area Overview:		3
2	Area Overview	3
3. Protection through Partnership:		4
3.1	Working with others	4
4. Actions:		5
4.1	Quality of surface waters	5
4.2	Meeting public water supply demand	9
4.3	Alleviation of low flows	11
4.4	Archaeology and the historic environment	13
4.5	Conservation of the natural environment	13
4.6	Recreation	16
4.7	Flood alleviation and control	17
4.8	Development control, including minimisation of flooding	18
4.9	Erosion and coastal changes	19
4.10	Fisheries Management	20
4.11	Waste management	23
4.12	Oil spills	24
4.13	Air quality	24
4.14	Contaminated land	24
Appendix 1	The Role of the Environment Agency	25
Appendix 2	River Quality Objectives	29



Acknowledgements

We would like to thank all those who have given valuable contributions to this report about activities during the past year. We would like to give particular thanks to the LEAP Steering Group. They are:

Name	Representing
Mr R Bastard	Riparian Owner, River Yealm
Mrs V J Burns	Local Interests
Mr B S Burrows	Regional Fisheries Advisory Committee, Tamar, Tavy, Lynher Netsmen Association
Cdr M Gilbert	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 Fisheries Association
Mr P Reay	Ecologist
Mr J Stewart	English Nature
Mr R McCawley	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 Fisheries Association
Mr J Chadwick	Area Environment Group

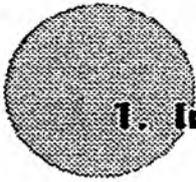


Our vision is of this area being managed in a sustainable way, that balances the needs of all users with the needs of the environment.

We look forward to a future where a healthy local economy leads to:

- biodiversity and physical habitat for wildlife being enhanced
- people's enjoyment and appreciation of the environment continuing to grow
- pressures from human wants being satisfied sustainably

We cannot realise this vision on our own and will seek to work in partnership with local authorities, local industry and local people to turn this vision into reality.



1. Introduction

1.1 Who are 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.

It has a wide range of duties and powers relating to different aspects of environmental management. It is required and guided by Government to use these duties and powers in order to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development as *"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*.

At the heart of sustainable development is the integration of human needs and the environment within which we live. Indeed the creation of the Agency itself was in part a recognition of the need to take a more integrated and longer-term view of environmental management at a national level. The Agency therefore has to reflect this in the way it works and in the decisions it makes.

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

Although the Agency has duties and powers to protect some environmental resources, it will need to contribute to other aspects of environmental management even if these are, in the first instance, the responsibility of others. The Agency can only do this effectively by working in partnership with and through others in order to set common goals and to achieve agreed objectives.

Much of the UK's environmental legislation originates from the European Union. To date there have been five EC Environmental Action Programmes which have collectively given rise to several hundred pieces of legislation of relevance to environmental protection, one of the most recent being the Directive on Integrated Pollution Prevention and Control. A number of other directives are currently under consideration, covering issues such as water management, air quality, and the management of waste using landfill.

Our Role

Our role is explained in further detail in Appendix 1.

This Annual Review of the Tamar Estuaries Action Plan

An important part of the Local Environment Agency Plans (LEAPs) process is to monitor the Action Plan to ensure that targets and actions are achieved and that the plan continues to address relevant and significant issues within the area. This Annual Review reports on the progress made since the publication of the Tamar Estuary and Tributaries Action plan in May 1997 and details the progress of work shown in the activity tables as well as any additional actions required in light of changes in the area. This Review will be distributed to all key partners and the LEAP Steering Group who represent a range of commercial, Local Authority and environmental interests (see Acknowledgements for a list of members). This group act as a link between the local community and ourselves and will help to promote and develop initiatives of benefit to the environment within the area. Copies of the Annual Review are freely available from the address at the front of this document.



2. Area Overview

2.1 Area Overview

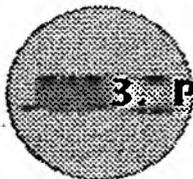
The area includes a diverse range of landscape and wildlife habitats; from the uplands of Dartmoor, the extensive creeks and mudflats of the river estuaries and rolling hills supporting relatively intensive agriculture. This contrasts with Plymouth, a maritime city with a population of over 250,000.

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.

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 industries, agriculture, tourism



3. Protection through Partnership

3.1 Working with others

The Agency is well placed to influence many of the activities affecting the 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 enable them to 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.

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.

The Agency works in partnership with other interested bodies and local groups through the Tamar Local Agenda 21 Forum and the Plymouth Environment Forum.

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 Agency has produced guidance notes in its document "Liaison with local Planning Authorities".

Other Initiatives

There are a range of initiatives by various bodies which at some level cover the area of this plan. These are both statutory and non statutory in nature and cover a variety of topics from environmental to social and economic interests. A number of bodies have produced, or are producing some form of documentation. It is important for all parties that where different interests overlap discussion occurs on those areas of common interest. In this way we can integrate action, being more efficient in our actions, avoiding duplication (or conflict) and make the most of limited budgets.

The Agency welcomes opportunities to work in partnership with interested bodies for the protection and enhancement of the environment.

4. Actions

The following tables update the progress of each issue identified in the Action Plan. The issues and activities are not presented in any order of priority.

The following points should be noted:

- Our everyday work commits substantial resources to monitoring and managing the environment.
- 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.

4.1 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 2).

River Quality Objectives

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 determinants in the RE classification.

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 (tertiary 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. We are currently monitoring the River Tavy and the River Lynher and Hays Valley Stream to find out whether they are eutrophic and should be proposed for designation as a Sensitive Area under the Urban Waste Water Treatment Directive

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 definitely not be carried out in the next five years as we anticipate improvements through the Clean Sweep Scheme.

Effects of historic metalliferous mining on tributaries of the River Lynher

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 through discharges of metalliferous compounds into watercourses from old mine workings.

Fish surveys in the Lynher catchment indicate a lower than expected number of salmon parr in the River Lynher and its tributaries. The reasons for the apparent low juvenile densities are presently not known. Metalliferous discharges may be a factor. An investigation into the potential for remediation of tributaries of the River Lynher to sustain spawning grounds will be needed.

Consent Review at International Paints

Following discussions with the Agency, International Paints agreed to undertake a programme of improvements to ensure that their discharge to the Yealm Estuary complies with a more stringent consent which will come into force by the end of July 1998.

Plymouth Misconnections Project

The problems of misconnections were highlighted in a project involving Plymouth City Council and major electrical goods retailers in the area. Promotion of solutions to the problems were included in Plymouth Green Week and the Plymouth People magazine. There is an ongoing education program through Plymouth City Council to schools and LA21 and residents groups.

Action	Lead Body	Cost (£)	Financial Year					Progress Year 1
			97	98	99	00	01	
Issue 1: Sewage treatment works (STWs) and storm sewer overflows impacting on water quality								
Crowndale (Tavistock)								
1.1 Improve storm sewer overflows on the sewerage system in Tavistock.	SWW	U	*				Storm overflow work complete and working well.	
1.2 Improve works.	SWW	U		*			Improvements to storm sewer overflow at Crowndale STW is being sought under AMP2. Further investment may be required in AMP3 subject to funding being approved by OFWAT.	
1.3 Review discharge consent if required.	Agency				*		Any review is dependent upon any investment secured in Action 1.2.	
Callington STW								
1.4 Improve works.	SWW	U					We are seeking improvements to Callington STW in AMP3. Any improvements undertaken will be subject to funding being approved by OFWAT.	
Plymouth Central								
1.5 Complete Plymouth Central Clean Sweep Scheme.	SWW	U					Ongoing work due to be complete by year 2000.	
Yealmpton								
1.6 Investigate impact of storm sewer overflows on water quality in the River Yealm and seek improvement where necessary.	SWW	U	*	*			If necessary, improvements will be sought under AMP3. Any improvements undertaken will be subject to funding being approved by OFWAT. A new, more stringent (River Needs) consent to discharge was issued for Yealmpton Sewage Treatment Works in August 1997.	
Issue 2: Other discharges impacting water quality								
2.1 Investigate effect of surface water drainage at Wembury.	Agency	U	*	*			Investigation showed uncontrollable intermittent urban discharges. No further action can be taken.	
2.2 Investigate impact from Lee Mill industrial estate surface water drainage on River Yealm.	Agency / SWW	Sk	*				Investigation complete. We have visited the estate to advise on pollution prevention measures. Report currently in preparation.	
2.3 Investigate impact of china clay discharges on invertebrate communities.	Agency	U					Not a priority action.	

Action	Lead Body	Cost (£)	Financial Year					Progress Year 1
			97	98	99	00	01	
2.4 Reduce 'dirty' surface water runoff from china clay operations.	Agency / ECCI	U	*	*	*	*	*	Ongoing work is seeking to reduce levels of suspended solids entering watercourses, particularly the Tory Brook.
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	*					Investigation into the exceedence of the EC Freshwater Directive standards in 1993 and 1994 did not identify the cause of non compliance. The site was compliant with the Directive in 1995, 1996 and 1997. 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 (Plymouth Clean Sweep scheme) 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 the estuary.	Agency							
3.5 Investigate sources of tributyltin (TBT) in the River Yealm.	Agency	10k	*					We have improved 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 Plym and Wotter Brook.	Agency	1k	*	*				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							Reprioritised. Not now being progressed.
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.

Action	Lead Body	Cost (£)	Financial Year					Progress Year 1
			97	98	99	00	01	
New Issue Effects of historic metalliferous mining on the tributaries of the River Lynher								
30.1 Investigate the potential for remediation of tributaries of the River Lynher for salmonid spawning	Agency	U				*	*	Investigation is likely to take approximately 5 years

4.2 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 scenario¹. 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 promote efficient water use and recycling;
- 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 leakage and little or 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.

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.

Agency Water Resources Strategy

In 1995 we produced 'Tomorrows Water', a strategy for the development of water resources in the South West. We are currently reviewing that document in light of changes in water supply and demand, see Issue 5.

Action	Lead Body	Cost (£)	Financial Year					Progress Year 1
			97	98	99	00	01	
Issue 4: Operation and management of public water supply								
4.1 Develop water conservation controls for a drought.	SWW	U	*					SWW have produced water conservation controls for the Roadford Strategic sources. The Agency is auditing this information. A similar process is underway for the Colliford strategic sources.
4.2 Revise Roadford Operating Agreement.	SWW	U	*					
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:	SWW/ Agency	(Agency costs only)						Prototype Agency model for Roadford complete; discussions with SWW over model assumptions ongoing. Yield assessment of the Roadford SSA is complete and will be taken forward into reviewing the company's supply/demand balance.
a) Roadford b) Colliford.		15k 15k	* *	* *				
5.2 Review resource and yield assumptions.	SWW/ Agency	40k	*	*				The Agency is aiming to present its response to water company water resources plans to DETR in late autumn.
5.3 Encourage demand management and leakage control.	Agency	20k	*	*	*	*	*	Leakage levels for the company continue to fall in line with target.
5.4 Review and revise 'Tomorrows Water'.	Agency	20k	*	*	*			To take place as part of the third periodic review of SWW's Asset Management Plan (AMP3) as required by OFWAT.

4.3 Alleviation of low flows

Actions that make up an alleviation of low flow project on the Tavy are outlined in Issues 6 and 7. The aim is to protect the water environment and increase flows down the Tavy.

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			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	*					Report has been circulated and presented to the Tavy Water Resources Group. 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	Agency / SWW	35k		*				Modification still to be agreed.
6.5 Complete Phase I PHABSIM to quantify impacts of abstractions on habitats.	Agency	30k	*	*				Fieldwork complete. Results of habitat mapping and preliminary PHABSIM modelling reported and presented to Tavy Water Resources Group. Further modelling using locally derived habitat suitability indices and modelled flow data underway shortly.
6.6 Complete Phase II habitat suitability Indices.	Agency	50k	*	*				Fieldwork complete. Habitat suitability indices being produced for input into next stage PHABSIM modelling. Final draft report due shortly.
Issue 7: Balancing flows between the River Tavy and hydropower abstractions								
7.1 Identify and agree an operating regime conducive to improving the water environment with proper regard to the interests of present abstractors of water.	Agency / SWW	30k	*	*	*			20 years of naturalised and historic flow output now available. Impact of historic abstractions presented to Tavy Water Resources Group. Potential management scenarios to be modelled next.
7.2 Determine minimum acceptable flow conditions in Tavistock-Morwellham Canal.	Agency	15k	*	*				Provisional arrangements in place and operating under trial.

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			97	98	99	00	01	
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. Negotiations are currently ongoing.
Issue 8: Protecting the deprived reach below Tavistock Fish Farm abstraction								
8.1 Measure impact of fish farm abstraction.	Agency	U	*					A means of measurement at this site is planned to be installed in 1998 to allow ongoing monitoring.
8.2 Discuss operation of fish farm abstraction when changes are made to SWW abstractions.	Agency/ Owners							Action is dependent on balancing diurnal fluctuation of flows upstream of the fish farm abstraction. Ongoing.
Issue 9: Other potential low flow sites								
River Meavy (Burrator) 9.1.1 Water releases to alleviate impact on fisheries.	Agency /SWW	U	*	*				Pipework has been installed and three releases made. Assessment of benefit and exact timing of water releases is planned.
9.1.2 Review impacts of reservoir operation on the fishery.	Agency	U	*	*				A report on fisheries monitoring data is currently being prepared.
9.1.3 Update comparison of compensation releases and natural Q95.	Agency	<1k	*					Completed. Derivations of theoretical estimates confirm original analysis. Theoretical Q95 is greater than compensation release.
9.1.4 Review compensation flow from reservoir.	Agency / SWW	U						Action dependent on the success of 9.1.1 and conclusions from 9.1.2.
River Plym (Ditsworthy Warren Leat) 9.2 Increase flows down river.	Agency /ECCI	U	*	*	*	*	*	ECCI are agreed in principle to protecting the river. We will review methods of increasing flow, compatible with their business needs.

4.4 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 useable 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 (£)	Financial years					Progress Year 1
			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. We will support further work where possible.

4.5 Conservation of the natural environment

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.

Natural Areas Project

English Nature and the Countryside Commission have completed a programme to describe England according to natural and cultural boundaries. The LEAP area includes sections of the Dartmoor, South Devon, Bodmin Moor, Start Point to Lands End and Cornish Killas and Granite natural areas.

Biodiversity Action Plans

Conservation of habitats and species is co-ordinated through the production of Biodiversity Action Plans (BAPs). This process, which began at the Rio Earth Summit in 1992, enables us and other conservation bodies to prioritise and concentrate our efforts where they are most needed.

Regional and County Biodiversity Initiatives are being overseen by steering groups of relevant bodies including the Agency.

Rare species

We will be carrying out surveys during summer 1998 on the Rivers Tavy and Lynher for rare species including otters, water voles and rare fish.

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. We have part-funded a project officer to promote otter conservation in Devon and Cornwall

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 will be focused for action through Issue 11.

Invasive Species

As a result of the Japanese Knotweed conference on 25th November 1997, organised by the Environment Agency and hosted by the National Trust, a co-ordinated control policy for Japanese Knotweed is being developed to prevent further spread and control of the existing areas. Representatives from County and District councils, the Agency, the National Trust, Cornwall Wildlife Trust, SWW, ECCL and many more were present at the conference. The Agency has sponsored a countrywide survey of Japanese Knotweed which is being compiled by the Botanical Society of the British Isles, and will be available in a GIS format. Agency flood defence maintenance teams have adopted the best practice for the control of Japanese Knotweed developed by the group. A leaflet explaining how to prevent the spread of Japanese Knotweed is available.

Giant Hogweed has now established itself along parts of the Tamar Estuary, and a survey has shown population levels that cause us concern. We are currently seeking to secure funds to carry out an eradication project. We have produced a booklet, available on request, that gives advice on controlling these species.

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

The UK Marine SACs (Special Areas of Conservation) Project is involved in establishing management schemes on selected UK marine SACs. Funding is provided by the UK's nature conservation bodies matched equally by the European Commission's Life Nature Programme. Plymouth Sound and Estuaries is one of these selected sites and over the last year or so Life funding has greatly assisted towards the development of a single scheme of management for the SAC. The project has helped fund the development of the Yealm Estuary Management Plan; a nature conservation review, commissioned to draw together all existing biological data, which is presented both in written format and graphically utilising a GIS mapping package; training seminars for local authorities, to name just a few.

As with many areas a large number of management plans and strategies already exist around the Plymouth Sound and estuaries area. In order to reduce unnecessary bureaucracy it has been agreed that the SAC management plan will sit within the framework of the existing estuary management structures, namely the Tamar Estuaries Forum and Yealm Estuary Forum. The estuary management plans and links to other plans, particularly the LEAP and the updating of the Oil Contingency Plan for the area have provided a very valuable start to the process. Their collaborative approach and consultative nature identifies key issues and concerns and therefore provides a firm basis from which to go on to develop conservation objectives and management policies for the SAC.

The Agency has part-funded 'Plymouth Sound and Estuaries Nature Conservation Review' in collaboration with English Nature and Plymouth City Council. This identifies key features within the estuary providing baseline information which will be used to help prioritise and direct future work in the area.

River Habitat Survey

We have put in place an improved system of assessing river habitat quality. This is likely to provide better information when considering proposals and enhancements.

Action	Lead Body	Cost (£)	Financial years					Progress Year: 1
			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 and works in partnership with other interested bodies.
11.2 Continue support of the Cornwall Biodiversity Initiative to produce actions specific to the Cornish part of the catchment.	CWT/EN/Agency	15k	*					Volume 1: Audit and Priorities was published in July 1997. We use the findings to prioritise our work
11.3 Investigate extent of current and potential flood plain wetlands using Section 105 surveys.	Agency	U	*	*				Our Section 105 surveys provide much digitised floodplain information.
11.4 Continue production and updating of wildlife inventories.	EN/RSPB/CWT/DWT/Agency	U	*	*	*	*	*	Devon Wildlife Trust have completed a West Devon Habitat Survey with our support that aims to identify County Wildlife Sites. Results currently being collated and will be finalised Summer 1999.
11.5 County-wide survey of sand martins.	Devon Birdwatching & Preservation Society	none to Agency	*					We contribute information on nest sites found through our rare species surveys
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	U	*	*	*	*	*	Ongoing
12.2 Project to eradicate Giant hogweed in the catchment.	Agency / EN Land-owners /LPAs	<10k						We are seeking to secure funds to carry out this project.
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/ Land-owners	<10k						Tamar included in Cornwall Area-wide knotweed initiative

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			97	98	99	00	01	
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	*	*				Widespread consultation has taken place on the Plymouth Sound and Estuaries Nature Conservation overview and final draft is being produced.
13.2 Review of consents, licences and operations against conservation objectives.	Agency	U		*	*	*		Ongoing
13.2 Follow up fieldwork as identified by 13.1.	Agency	4k						

4.6 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.

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.

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 for sustainable recreation in the area.

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			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	On-going	*	*	*	*	*	
14.2 Fund projects.	Agency	1k		*				Survey of recreational resource complete. Funding currently being sought for interpretation boards.

4.7 Flood alleviation and control

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

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 improvements to alleviate coastal flooding and erosion, and flood defence on ordinary watercourses.

Leaflets are available showing the main rivers and coasts where a flood warning service is provided. A region-wide survey into the current flood warning Levels of Service is due to be completed by the end of 1999. The results from this study will identify locations where a service can be introduced or improved. Any improvements will be prioritised taking account of the needs of the whole area.

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 has a secondary use in providing information for Biodiversity Action Plans.

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			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 in the year 1999-2000. Development of the system is carried out nationally. The region has input to this through a user group.
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.
16.2 Update, enhance and maintain flood warning database.	Agency	Part of regional cost	*	*	*	*	*	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.

4.8 Development control, including the minimisation of flooding

A programme of flood risk data survey, interpretation and provision to planning authorities is in hand, though currently predominantly for "main rivers". Floodplain information for main rivers for the catchment has been made available to local authorities.

The Agency is encouraging the adoption of source control; the selective use of structures such as soakaways as part of a development to promote infiltration. These would help to replenish groundwater as well as reduce the erosion potential in watercourses, however their use must be site dependent. 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.

There are a number of locations where consented sewage treatment discharges are having an environmental impact where we recommend development constraint. These are listed in our regularly updated consultation guides.

The Environment Agency normally objects to the infilling of intertidal areas to protect it as a wildlife habitat. The Tamar foreshore can also include archaeological features and contributes to the landscape value of the basin as a whole. In addition to the individual loss of wildlife and other features, the intertidal areas are part of a complex of physical and ecological interactions which are interrupted with the cumulative piecemeal loss of the intertidal area for land gain.

When a development proposal includes infilling parts of the foreshore we assess the ecological, archaeological and landscape impact and whether there are suitable alternatives to the proposed development.

Plymouth City Councils Local Plan includes policies (eg.AEV42), to address these concerns

We are also working with Plymouth City Council on a project to assess the cumulative effect of piecemeal infilling of intertidal land around the coastal fringe of Plymouth.

Action	Lead Body	Cost (£)	Financial years					Progress Year:1
			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	*	*	*	*	*	A detailed survey of Marsh Mills has been carried out. Currently assessing findings.
17.2 Advice to LPAs on development to prevent increase in flood risk.	Agency	U	*	*	*	*	*	Floodplain information for main rivers has been made available to local authorities.
Issue 18: Possible impact of development on ground and surface waters in Plymouth								
18.1 Promote source control through policies and increased awareness.	Agency	On-going	*	*	*	*	*	Agency is discussing site specific solutions at pre-planning stage with other interested parties.

4.9 Erosion and coastal changes

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:

- Lyme Bay and South Devon Coastline to Rame Head
- Rame Head to the Lizard.

The plans ensure that coastal defences against flooding and erosion 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 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'. 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 (£)	Financial years					Progress Year 1
			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	*	*				Consultation on the plan is due to commence in July 1998, whereupon the Agency will formally adopt it through its regional Flood Defence Committee.
19.2 Develop Rame Head to Lizard Shoreline Management Plan.	Kerrier District Council	29k	*	*				Consultation is programmed during November 1998 and again in spring 1999. Following this the Agency's Regional Flood Defence Committee will be asked to formally adopt it.

4.10 Fisheries management

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.

Salmon Action Plans are being developed for all major 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. The Salmon Action Plan for the River Tamar has been published for consultation and the River Lynher Salmon Action Plan will be circulated for consultation soon

Status of fish stocks

Most of the catchment rivers support good quality fisheries although there is concern over a national decline in salmon stocks. We will work with local fisheries associations to investigate the current status of stocks. Our core work includes a programme of fish surveys throughout the rivers.

There is no independent, reliable means to assess the salmon stock on some rivers in Cornwall Area. We will be assessing the need and likely costs for fish counting facilities on the Rivers Lynher and Plym over the next few years.

Analysis of fish survey results has shown a lower than expected number of salmon parr on the River Lynher. The reason is unknown but may include chronic impact of historic metalliferous mining on tributaries of the River Lynher. As a result of historic mining activities the Darleyford Stream and Marke Valley Stream are not capable of sustaining populations of fish, but investigation of other tributaries may indicate potential for remediation. (see New Action, page 21)

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. Work has been carried out on the Rivers Yealm and Lynher during 1997. This will be continued throughout 1998.

Historical evidence indicates that Deans Brook once supported good sea trout and salmon spawning. However changes in land use has resulted in siltation which may have reduced the stream's ability to sustain migratory salmonids. This may also apply to other rivers in Cornwall Area. In conjunction with a National Agency R&D project investigating effects of silt loadings on spawning gravels, an assessment of the status of siltation is needed.

Construction of instream structures (croys)

A joint protocol of best practice for positioning and construction of croys with South West Rivers Association is currently being produced to ensure a consistent and efficient approach to applications.

Enforcement

The number of fish entering the rivers is linked to levels of salmonid poaching with gill nets in the estuaries and adjacent coastal waters. Prior to the 1980s 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.

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.

Endangered fish species

Shad are a national Biodiversity priority species. A study of shad species in the Tamar Estuary will be undertaken and will provide information for a national map of shad breeding distribution. The survey will also include other rare fish such as smelt and sea lamprey. All information gathered will be shared with our partners in this project, the Marine Biological Association and the new Plymouth aquarium.

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			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.(see action 6)
20.2 Salmon Action Plans to be produced: Plym Yealm Tavy Lynher.	Agency	U		*	*	*	*	Tamar published, Lynher in preparation
20.3 River Tavy - prevention of potential over-exploitation of salmon by licensed netting.	Agency	U		*				We have commissioned a study into various options.
20.4 Investigate possible byelaws to increase escapement of multi sea winter fish.	Agency	U		*				We will attempt to assess the benefit of and compliance with voluntary measures

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			97	98	99	00	01	
Issue 21: Insufficient age class data for adult salmon and sea trout particularly on the Rivers Plym Yealm, and Lynher								
21.1 Further scale reading to investigate adult population trends in stock abundance.	Agency Anglers	On-going	*	*	*	*	*	We need scales from fish caught (and not returned) by anglers
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		*				A study of shad species in the Tamar Estuary is being undertaken.
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						Not a priority and no resources available at present.
23.2 Investigate need for remediation work on Plym, Yealm and Lynher, including weed at Trewint works.	Agency	2k	*					Some work carried out on Yealm and Lynher - to be continued in 1998.
New Action 23.3 Assess the current status of siltation of Deans Brook salmon spawning gravels	Agency	U		*				We are considering some precautionary remedial work prior to the National R&D study.
Issue 24: Construction and location of instream structures								
24.1 Prepare a guidance policy on construction and positioning of croys.	Agency	U	*	*				Consultation with Riparian/ Fishery interests undertaken. Draft guidelines were produced in June 1998. Liaison continuing.
Issue 25: Obstructions to fish migration requiring improvement or maintenance								
25.1 Complete survey of manmade obstructions/ weirs.	Agency	10k		*				Successful project bid made for survey including feasibility and benefit of undertaking such work.
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		*				Project money available 1998
26.2 Assessment of impact on Lynher.	Agency	10k		*				Project money available 1998.

4.11 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 Councils recycling scheme.

With the exception of special wastes using the consignment note system and household wastes, for which closely monitored collection and disposal contracts are in place, there is only sparse information on the types and quantities of wastes generated in Devon and Cornwall. The Environment Agency's forthcoming national survey of waste arisings will provide better data in future. The Agency is to prepare a Regional Waste Management Plan, based on the survey findings.

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.

Caradon District Council, in conjunction with the Agency, recently launched an initiative to stop fly tipping in the district.

In association with Plymouth City Council, Caradon District Council, English Nature and Cattewater Harbour Commissioners we have supported an initiative to highlight the sources and fates of marine litter in Plymouth Sound and the estuaries. The outcome of the project will be a strategy to both reduce inputs and to clean up existing and future litter in the area. A programme of education and provision of skips, bins and voluntary clean-ups will all feature in the strategy.

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			97	98	99	00	01	
Issue 27: The need for a regional waste strategy								
27.1 Undertake waste arisings survey.	Agency	U	*	*				A national strategy will be drawn up from the findings of the survey.
27.2 Draw up strategy.	Agency							
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	On-going U	*	*	*	*	*	The encouragement of waste minimisation and recycling is being progressed through the promotion of the Agency Commercial Recycling Directory and routine visits to waste producers. The Agency attends a waste minimisation group covering the South Hams district. Need identified in Cornwall Waste Local Plan.
28.2 Development of waste recovery facilities.	County and District Councils/ Industry	U						

4.12 Oil spills

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 estuaries recent designation under the European wildlife directive and following local government reorganisation in the area. The working group comprises of English Nature, Environment Agency, Ministry of Defence, County and City Councils.

Action	Lead Body	Cost (£)	Financial years					Progress Year 1
			97	98	99	00	01	
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, MoD, Oil industry	15k	*					Consultant's report being reviewed for incorporation as part of the plan.
29.2 Establish booming and anchoring points and establish maintenance regime.	As 29.1	10k	*	*				Installation work in progress.
29.3: Revise and test (as appropriate) existing contingency plan.	As 29.1	U		*	*	*	*	Exercise scheduled for October 1998 to install a boom across St John's lake.

4.13 Air Quality

We do not cover all aspects of air pollution but work closely with other regulatory bodies such as local authorities.

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

Wainstones Power Ltd have applied to the Department of Trade & Industry for Consent under Section 36 of the Electricity Act 1989, to construct and operate an electricity generating station at Langage. The proposal is for a combined cycle gas turbine energy centre with an electrical output of 1000 MW. This power station will require an authorisation granted by The Agency, under Section 6 of the Environmental Protection Act 1990, before it can operate. The Agency will only grant the authorisation if the process can meet air quality standards and all the relevant regulatory requirements.

4.14 Contaminated Land

During the course of its use, land can be damaged by chemical pollution. Section 57 of the Environment Act 1995 will give the Agency and Local Authorities new duties with respect to contaminated land. Local Authorities will identify sites of contamination where as the Agency act in an advisory role on remediation plans.

Appendix 1: Duties, powers and interests of the Environment Agency

The Environment Agency has a wide range of interests in the areas of water management, waste management and pollution prevention and control. Whilst many of these interests are supported by statutory duties and powers, much of our work is advisory, with the relevant powers resting with other bodies such as Local Planning Authorities, for example we are not responsible for:-

- noise problems (except if it is to do with our work)
- litter (unless it is restricting the flow of a river)
- air pollution arising from vehicles, household areas, small businesses and small industry
- collecting waste in your local area
- planning permission
- environmental health
- food hygiene

These are all dealt with by your local planning authority who will contact us if necessary.

We are not responsible for the quality or supply of drinking water at the tap or for treating sewage waste, although we regulate discharges from sewers and sewage treatment works.

The following table summarises our duties, powers and interests and their relationship to land-use planning.

Agency Duty	The Agency has powers to:	The Agency has an Interest (but no powers) in:	Partnership
<p>Water Resources The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.</p>	<p>Grant or vary water abstraction and impoundment licences on application. Revoke or vary existing licences to reinstate flows or levels to surface waters or groundwater which have become depleted as a result of abstraction, and are subject to a liability for compensation. Secure the proper use of water resources through its role in water-resources planning, the assessment of reasonable need for abstractions and promotion of more efficient use of water resources. Monitor and enforce abstraction and impoundment licence conditions.</p>	<p>The more efficient use of water by water companies, developers industry, agriculture and the public and the introduction of water-efficiency measures and suitable design and layout of the infrastructure.</p>	<p>The Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water. The Agency acknowledges that new resources may be needed in the future and supports a twin-track approach of planning for water resource development alongside the promotion of demand management measures. The Agency seeks to influence planning decisions for new development by encouraging the inclusion of water-conservation measures in new properties, particularly in areas where water resources are under stress, and by ensuring that planning authorities allow for the lead time for resource development.</p>

Agency Duty	The Agency has powers to:	The Agency has an Interest (but no powers) in:	Partnership
<p>Flood Defence The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.</p>	<p>Control, through Land Drainage consents, development or construction of a structure that would affect the flow of an ordinary watercourse (Water Resources Act, 1991 Section 109, Land Drainage Act, 1991 Section 23). Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991. Undertake works to main rivers using permissive powers. Issue flood warning relating to main river to the public, local authorities and the police. Consent mineral workings within 16 metres of main rivers.</p>	<p>Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by Local Planning Authorities. Installation of surface water source control measures e.g. flood attenuation structures. Supervising the maintenance of ordinary watercourses which is a Local Authority remit, but may impact on main rivers. Installation of buffer zones which reduce flood risk and have significant environmental benefits. Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance.</p>	<p>As a statutory consultee on planning applications within main-river floodplains, the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts or proposed floodplain development. The Agency will encourage best practice, including source-control measures and common standards, among Local Authorities and riparian owners to protect and enhance the environment. The Agency works with the civil authorities to prepare flood-warning dissemination plans and supports their endeavours to protect communities at risk.</p>
<p>Water Quality The Agency has a duty to monitor, protect, manage and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.</p>	<p>Issue discharge consents to control pollution loads in controlled waters. Regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharges consents. Prosecute polluters and recover the costs of clean-up operations.</p>	<p>The control of runoff from roads and highways. This is a Highway Agency duty. The greater use of source-control measures to reduce pollution by surface-water runoff. Prevention and education campaigns to reduce pollution incidents.</p>	<p>The Agency will liaise with Local Authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source-control measures. As a statutory consultee on planning applications, the Agency will advise Local Planning Authorities on the water-quality impact of proposed developments.</p>
<p>Air Quality The Agency has a duty to implement Part 1 of the Environment Protection Act 1990.</p>	<p>Regulate the largest technically-complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO. Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes.</p>	<p>The vast number of smaller industrial processes which are controlled by Local Authorities. Control over vehicular emissions and transport planning.</p>	<p>The Agency provides data on IPC processes and advice on planning applications to Local Authorities. The Agency is willing to offer its technical experience to Local Authorities on the control of air pollution. The Agency wishes to liaise with Local Authorities in the production of their Air Quality Management Plans. The Agency will advise and contribute to the government's National Air Quality Strategy.</p>

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
<p>Radio-active Substances The Agency has a duty under the Radio-active Substances Act 1993 to regulate the use of radio-active materials and the disposal of radio-active waste.</p>	<p>To issue certificates to users of radio-active materials and disposers of radio-active waste, with an overall objective of protecting members of the public.</p>	<p>The health effects of radiation.</p>	<p>The Agency will work with users of the radio-active materials to ensure that radio-active wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with MAFF to ensure that the disposal of radio-active waste creates no unacceptable effects on the food chain. The Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites. The Agency will work with the HSE on worker-protection issues at non-nuclear sites.</p>
<p>Waste Management The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities.</p>	<p>Vary waste management licence conditions. Suspend and revoke licences. Investigate and prosecute illegal waste management operations</p>	<p>The siting and granting of planning permission for waste management facilities. This is conducted by the waste industry and Local Planning Authorities. The Agency, as a statutory consultee on planning applications, can advise on such matters.</p>	<p>The Agency will work with waste producers, the waste-management industry and local authorities to reduce the amount of waste produced, increase reuse and recycling and improve standards of disposal.</p>
<p>Contaminated Land The Agency has a duty to develop an integrated approach to the prevention and control of land contamination ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.</p>	<p>Regulate the remediation of contaminated land designated as special sites. Prevent future land contamination by means of its IPC, Water Quality and other statutory powers. Report on the state of contaminated land.</p>	<p>Securing with others, including Local Authorities, landowners and developers, the safe remediation of contaminated land.</p>	<p>The Agency supports land remediation and will promote this with developers and Local Authorities and other stakeholders.</p>
<p>Conservation The Agency will further conservation, wherever possible, when carrying out water-management functions; have regard to conservation when carrying out pollution-control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.</p>	<p>The Agency has no direct conservation powers, but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation.</p>	<p>The conservation impacts of new development. These are controlled by Local Planning Authorities. Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to Local Authorities and developers to protect the integrity of such sites or species. Implementation of the UK Biodiversity Plan for which it is the contact point for 12 species and one habitat.</p>	<p>The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation. The Agency will work with developers, Local Authorities, conservation bodies and landowners to conserve and enhance biodiversity.</p>

Agency Duty	The Agency has powers to:	The Agency has an Interest (but no powers) in:	Partnership
<p>Landscape The Agency will further landscape conservation and enhancement when carrying out water-management functions; have regard to the landscape when carrying out pollution-control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.</p>	<p>The Agency must further the conservation and enhancement of natural beauty when exercising its water-management powers and have regard to the landscape in exercising its pollution-control powers.</p>	<p>The landscape impact of new development, particularly within river corridors. This is controlled by Local Planning Authorities.</p>	<p>The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with Local Authorities and developers to conserve and enhance diverse river landscapes.</p>
<p>Archaeology The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.</p>	<p>The Agency must promote its archaeological objectives through the exercise of its water-management and pollution-control powers and duties.</p>	<p>Direct protection or management of sites or archaeological or heritage interest. This is carried out by LPAs, County Archaeologists and English Heritage.</p>	<p>The Agency will liaise with those organisations which have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests.</p>
<p>Fisheries The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.</p>	<p>Regulate fisheries by a system of licensing. Make and enforce fisheries byelaws to prevent illegal fishing. Promote the free passage of fish and consent fish passes. Monitor fisheries and enforce measures to prevent fish-entrainment in abstractions. Promote its fisheries duty by means of land drainage consents, water abstraction applications and discharge applications.</p>	<p>The determination of planning applications which could affect fisheries.</p>	<p>Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and Local Authorities to protect fisheries.</p>
<p>Recreation The Agency has a duty to promote rivers and water space for recreational use.</p>	<p>The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management.</p>	<p>Promotion of water sports. This is carried out by the Sports Council and other sports bodies.</p>	<p>The Agency will work with the Countryside Commission, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment.</p>

APPENDIX 2

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.

