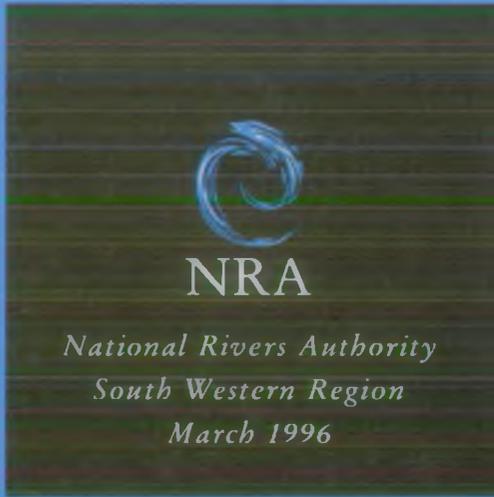


THE FRESHWATER TAMAR AND TRIBUTARIES CATCHMENT MANAGEMENT PLAN ACTION PLAN



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Abbreviations, Units and References

<p>Environment Agency Information Centre Head Office</p> <p>Class No</p> <p>Accession No <u>A.SZ1</u>.....</p>

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ENVIRONMENT AGENCY



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1. INTRODUCTION

Following production of the Freshwater Tamar and Tributaries Catchment Management Plan Consultation Report (Ref. 1) and the consultation period, we are now presenting the Action Plan. It includes tables of actions to address the issues and primarily covers the five year period from April 1996 to March 2001. The Action Plan will form the basis for improvements to the water environment by outlining areas of work and investment proposed by the NRA and others.

2. OUR VISION FOR THE CATCHMENT

Most societies want to achieve economic development to secure a better quality of life, now and in the future. They also seek to protect their environment now and for their children. Sustainable development tries to reconcile these two objectives - meeting the needs of the present without compromising the ability of future generations to meet their own needs. To achieve this judgements have to be made about the weight to be put on different factors in particular cases. Sometimes environmental costs have to be accepted as the price of economic development but on other occasions a site, or an ecosystem, or some other aspect of the environment has to be regarded as so valuable that it should be protected from exploitation.

The Freshwater Tamar and Tributaries Catchment is a high quality environment which has suffered relatively little harm from development. However one of the early industries which brought prosperity to the area - mining - has left a legacy of contaminated drainage which continues to affect rivers in the catchment. Agriculture has had significant impact on the catchment, with extensive land drainage affecting flows, habitat and water quality. With large numbers of livestock, particularly dairy herds, within the catchment the risk of pollution incidents is high.

The catchment is significant in regional terms for providing public water supply from Roadford Reservoir, via the River Tamar to Gunnislake.

Today the NRA's role is to recognize what environmental features are important in the catchment and ensure that developments do not cause unacceptable damage to them.

In practice we achieve environmental sustainability by setting limits of acceptable environmental change. Some of the activities which are described in the tables in this Action Plan outline our role in setting these limits - particularly in the field of water quality management.

The NRA's vision for the Freshwater Tamar and Tributaries Catchment is towards a future where:

- *there is minimal compromise of water quality, quantity and physical structure of the water environment to facilitate development of the area*
- *the aquatic biodiversity of the catchment is maintained and extended*

- *improvements continue to be made to existing discharges, meeting appropriate standards*
- *an agricultural and forestry system develops which reduces the risk of diffuse pollution and improves the physical habitat of rivers and wetlands for wildlife*
- *peoples' enjoyment and appreciation of the river system continues to grow*
- *there is minimal risk to people and property from flooding*
- *development of public water supply is managed to minimize environmental impact.*

3. PUBLIC CONSULTATION

The Freshwater Tamar and Tributaries Catchment Management Plan Consultation Report was published for public consultation in September 1995. We consulted over 50 organizations and individuals directly about the issues which are outlined in this Action Plan, sent out over 400 copies of the Consultation Report and received 42 formal responses. For a list of organizations that we consulted and a summary of their responses see Appendix 2.

4. CATCHMENT MANAGEMENT PLANS & DEVELOPMENT PLANS

Although we can control some of the things which influence the quality of the water environment or affect flood risk we have very little direct control over the way that land is developed. This is the responsibility of local planning authorities (LPAs).

Local planning authorities prepare statutory development plans. The policies in these plans will guide the way that land is developed in the future. We have published guidance for local planning authorities to encourage them to adopt policies which protect the water environment from harmful development. The emerging Local Plans prepared by LPAs in this catchment contain such policies. Where we can we will reinforce these policies when we comment on planning matters or when we issue our own consents and licences. This Action Plan includes our concerns about development.

5. FUTURE REVIEWS

We will update this Action Plan by publishing an Annual Review which will be reviewed by the Catchment Steering Group and be available to all interested parties. The Annual Review will examine the need to update Issues and Actions in the light of changes within the catchment.

6. THE FRESHWATER TAMAR AND TRIBUTARIES CATCHMENT

The rivers of the Freshwater Tamar and Tributaries Catchment extend from the tidal limit at Gunnislake Weir to within 10 km of the north coast. The River Tamar itself forms a natural boundary between the counties of Devon and Cornwall. It is a mainly rural catchment. In 1992 the resident population connected to mains sewerage was approximately 21,650. A summer influx of tourists can significantly increase pressure on infrastructure and resources, with higher waste water generation and public water demand. The catchment is a source of public water supply for a large part of Devon and north-east Cornwall.

Agricultural activity in the north of the catchment is primarily dairying, beef and sheep rearing. There is extensive land drainage in the north of the catchment (around 75% of the land is drained).

The prime feature of the north of the catchment is Culm grassland, wet, acidic pastures over clayey, poorly drained soils. In the UK, Culm grassland is only found in this part of Devon and Cornwall and is of very special landscape and wildlife value. The catchment is also known for its otter population.

6.1 Catchment Facts

Area 927.75 km² Population (1991) 32,900

FLOOD DEFENCE

Length of statutory main river	111.7 km
Length of NRA defences	2.44 km

WATER QUALITY

General Quality Assessment (GQA)		Non GQA	
1994 Chemical Assessment		1994 Biological Classification	
A (Good)	144.8 km	A (Good)	466.1 km
B (Good)	160.9 km	B (Moderate)	1.9 km
C (Fair)	47.2 km	C (Poor)	0 km
D (Fair)	5.4 km	D (Very poor)	0 km
E (Poor)	0 km		
F (Bad)	0 km		

(Total river lengths vary due to different monitoring sites)

WATER RESOURCES

Licensed abstractions (As of 05/12/95)	surface - 24 groundwater - 464
Licensed abstraction volume (As of 05/12/95)	surface - 170,103ML /Year groundwater - 935.5ML /Year (ML=1,000,000 litres)

The total volume of licensed abstractions in the catchment is 171,038.5 ML/Year. The long term average flow of the River Tamar, measured from 1957 to 1995, at the Gunnislake gauging station is 707,699 ML/Year.

EC FRESHWATER FISHERIES

Salmonid (Game) fishery	179.0 km plus Upper Tamar Lake
Cyprinid (Coarse) fishery	Lower Tamar Lake

WILDLIFE

Sites of Special Scientific Interest (SSSIs)	19
Water dependant SSSIs	10

7. ACTION TABLES

The issues listed in the following Action Tables were first published in the Consultation Report. Issue numbers correspond to those listed in the Consultation Report, though some have been regrouped and the titles simplified. There are three categories of issues in this Action Plan:

- *issues which we need to tackle with a special project. These actions may have a cost given to them, or the cost may be unknown (U). A dot will show in which year the work will be undertaken*
- *issues we can address with our ongoing work. Often these will have no cost given, but be titled 'Core Work'. A dot will show in which year the work will be undertaken*
- *issues which we will not address in the life of this plan - 'no-action issues'. An estimated cost of the work may be given but no dot will appear in any of the year columns.*

In order to help people find issues that relate to a particular area of interest there is a Topic/Issue Table on Page 19 (Appendix 1). This gives a number of topic titles (along the top row) and which issues in the plan (numbers down the side) may impact on them.

7.1. Water Quality

We aim to maintain and where appropriate improve the quality of water for all those who use it. We achieve this by setting water quality targets for the catchment based on:

- * Standards laid down in EC Directives
- * River Quality Objectives to protect recognized uses.

7.1.1. EC Directive Standards

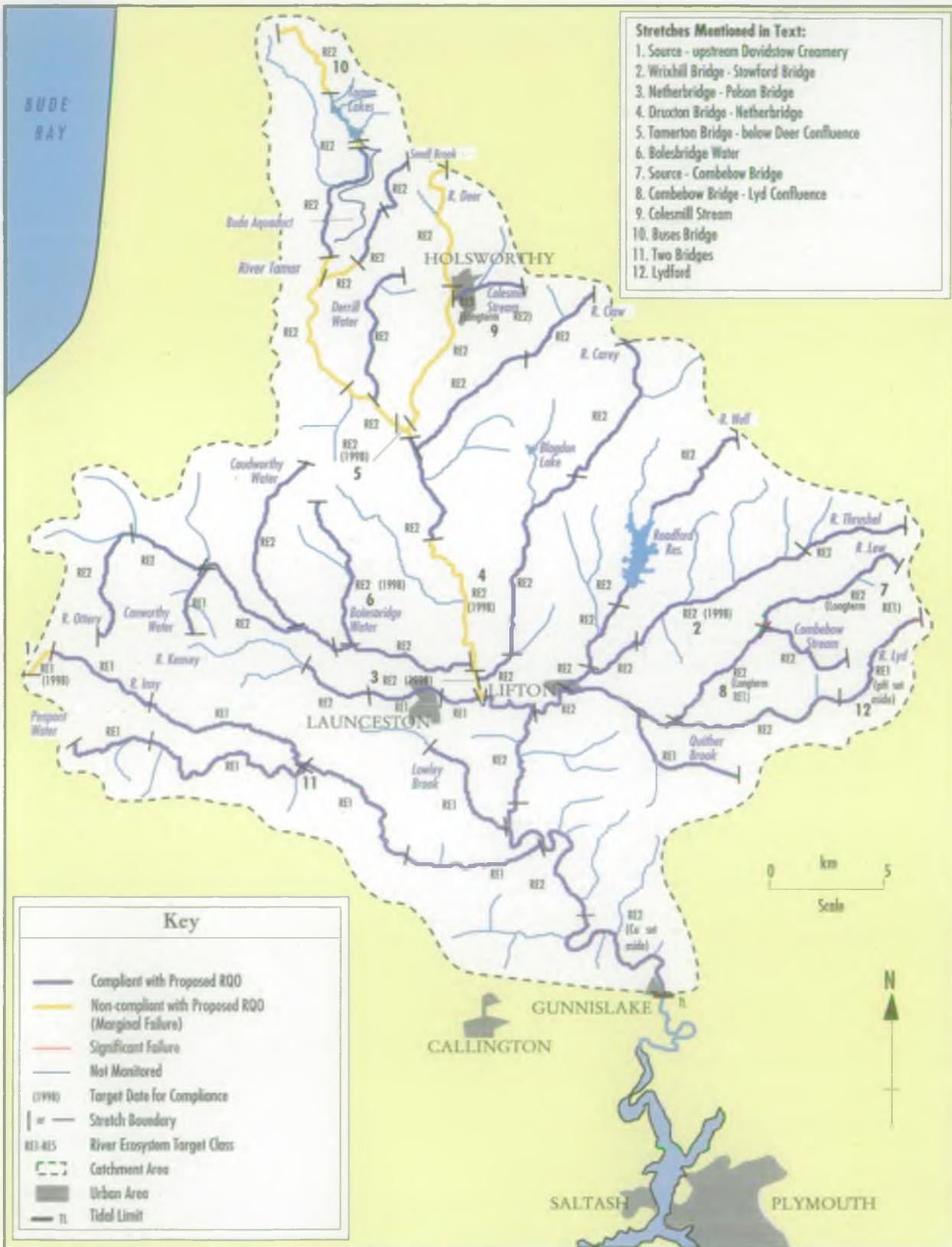
There are five EC Directives which currently apply to the catchment (Freshwater Fish Directive, Surface Water

Abstraction Directive, Dangerous Substances Directive, Urban Waste Water Treatment Directive and Groundwater Directive). Where EC Freshwater Fish Directive standards, in particular those for pH and metals, are not met due to natural sources of metal enrichment, we can apply for a derogation. This means that we will continue to monitor and report concentrations of derogated substances. However, the derogation acknowledges that although we understand why these substances exceed their standards we cannot control their release into the environment.

Most designated EC sites in the catchment meet the appropriate standards. Where a site has failed to meet EC Directive standards we have identified what action will be taken.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 1 The effect of agricultural activity on water quality Issue 1.4 Non-compliance with EC Freshwater Fish Directive, River Tamar at Buses Bridge								
Action 1.4.1 Investigations to identify sources	NRA	4k	●					
Action 1.4.2 Promote COGAP and farm waste management plans	MAFF, NFU CLA	Core work	●	●	●	●	●	
Issue 2 The effect of local geology/abandoned mines on water quality Issue 2.1 Exceedence of Freshwater Fish Directive standard for total zinc at Two Bridges on Penpont Water								
Action 2.1.1 Investigate sources/ component loads.	NRA	1.5k	●	●				If investigation shows the cause of exceedence to be natural enrichment we will apply for a derogation. See explanatory text in EC Directive text above.
Action 2.1.2 Continue to monitor designated stretches		12.5k	●	●	●	●	●	
Issue 2.2 Exceedence of EC Dangerous Substances List II for copper in River Tamar downstream of Hingston Quarry								
Action 2.2.1 Move monitoring point downstream outside mixing zone. Action complete.	NRA							New monitoring point will give a more representative sample.

MAP 2: RIVER QUALITY OBJECTIVES (RIVER ECOSYSTEM CLASSIFICATION) AND COMPLIANCE 1994



7.1.2. River Quality Objectives

The water quality targets that we use in all rivers are known as River Quality Objectives (RQOs). RQOs are used for managing water quality, and are based on the River Ecosystem (RE) classification. The RE classification scheme is made up of five water quality classes (RE1 to RE5) which reflect the chemical quality needed by different types of river ecosystem, including the different types of fishery they are able to support (see Appendix 3 for more detail). The RE classification scheme replaces the National Water Council (NWC) system previously used by the NRA.

The Consultation Report introduced proposals for RQOs based on RE classes. As a result of the consultation process the RQOs have been finalized and are shown on Map 2.

Set Aside of Data

In certain circumstances we may *set aside* data when we decide

whether an RQO is achieved. 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. Map 2 shows where we will *set aside* data.

Map 2 also shows where current water quality fails to meet its RQO. This assessment is based on three years of routine monitoring data from the Water Quality Archive between 1992 and 1994. The failures are identified as either marginal or significant.

We will report annually to the Steering Group on stretches of river which fail their RQO, the reasons and proposed action. Stretches requiring improvements to bring about or maintain compliance with longer term compliance dates are listed in the following table.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 1 The effects of agricultural activity on water quality - Marginal non-compliance with RQO								
Action 1.1.1 Investigate causes of RQO failure and follow up action. Report annually to the Steering Group.	NRA		●	●	●	●	●	The failing stretches have been targeted in a walkover inspection programme in 96/97. In addition to agriculture, surface drainage from non-agricultural sources may be contributing to non-compliance.
Action 1.1.2 Undertake work to achieve compliance by 1998 on the following stretches: River Tamar: Tamerton Bridge to below River Deer Confluence, Druyton Bridge to Netherbridge, Netherbridge to Polson Bridge. River Thrushel: Wrixhill Bridge to Stowford Bridge Bolesbridge Water River Inny: Source to Upstream Davidstow Creamery.	NRA	8k	●	●				Though some stretches achieved compliance in 1994 investigations will continue to ensure regular compliance.
Action 1.1.3 Investigate links between agricultural activity and wet weather deterioration in water quality in a subcatchment.	NRA	20k	●					This work aims to identify any sources of organic material which are leading to RQO failures and poor water quality during periods of wet weather. The work should complement that carried out in Issue 11.
Issue 6 Acidic Runoff								
Issue 6.1 Low pH in the River Lyd at Lydford								
Action 6.1.1 NRA to <i>set aside</i> data, see Map 2.	NRA							See River Quality Objective text above for a description of <i>set aside</i> .

7.1.3. Other Water Quality Issues

In addition to failures to meet standards of the EC Directives and RQOs there were a number of other water quality problems

identified in the Consultation Report. They are dealt with in the following table.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 2 Effect of local geology/abandoned mines on water quality								
Issue 2.3 Possible future release of metal contaminated water as a result of quarrying activity at Hingston Down								
Action 2.3.1 Continue monitoring for metals	NRA, Quarry Owners	6k	●	●	●	●	●	Carry out remedial action if risk of contamination increases
Issue 2 Effect of local geology/abandoned mines on water quality								
Issue 2.4 Inputs of metals from abandoned mines and waste tip sites								
Action 2.4.1 Non-disturbance of Devon Great Consols spoil tips through planning controls.	West Devon BC NRA	Core work	●	●	●	●	●	
Action 2.4.2 Investigate sources/component loads.	NRA							
Issue 3 High loads of Annex 1A substances in the River Tamar at Gunnislake								
Action 3.1 We may be required to take further action to reduce certain Annex 1A substances. We are awaiting publication of DoE guidelines arising from the 4th North Sea Conference before taking further action.	DoE (NRA)							At the 2nd and 3rd North Sea Conferences in 1987 and 1990 the UK government made a commitment to reduce the load (concentration x flow) of certain substances.
Action 3.1.1 Desk top study to investigate sources of substances within the catchment.	NRA	U	●					
New Issue 40 High levels of biocides in the River Tamar at Gunnislake								
Action 40.1 Investigate sources of high loads of organic substances. This work may also feed into Issue 3.	NRA	41.5k	●					Intermittent high levels of organic substances have been recorded at Gunnislake. These are of concern, particularly as they impact on the public water supply abstraction point at Gunnislake.
Issue 4.1 Trophic status of Tamar Lakes								
Action 4.1.1 Review reservoir operation	NRA, SWWSL							
Action 4.1.2 Continue monitoring to establish trophic state and levels of impact.	NRA	2.5k	●	●	●	●	●	
Action 4.1.3 Investigate nutrient status	NRA	5k	●	●				When investigations are complete carry out recommendations as appropriate.
Issue 4.2 Possible eutrophication within Tamar Catchment								
Action 4.2.1 Continue monitoring to establish trophic state and levels of impact.	NRA	U	●	●	●	●	●	

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 99	97 99	99 00	00 01	
Issue 5 High levels of suspended solids in the Tamar Catchment								
Due to budgetary constraints no specific action is proposed over the 5 year period of this plan. However work will be carried out as part of Issues 14 and 11 to monitor for possible impact and control mechanisms.	NRA							Whilst the consultation document identified high levels of suspended solids it was not clear if these were artificially high or if they caused a significant problem. An NRA report has identified the source as being largely due to natural causes.
Issue 6 Acidic Runoff								
Issue 6.2 Acidic runoff leading to fish kills on the Rivers Kensey and Ottery								
Action 6.2.1 In drought years we will have a watching brief at the end of the drought to carry out monitoring to identify sources.	NRA	U	●	●	●	●	●	As in the 1995 drought we would monitor the rivers for drops in pH as the drought breaks and seek to identify sources. Following this we would investigate the cost benefit of works which could be undertaken to reduce the impact in this or future years.

7.2. WATER RESOURCES

We aim to manage water resources to achieve the right balance between the needs of the environment and those of abstractors. We achieve this through effective licensing control and operational agreements. Our Regional Water Resources Development Strategy: 'Tomorrow's Water' (Ref. 2) sets out the approach we will adopt when faced with resource development proposals. Sustainability is a key component of our approach.

7.2.1. The Effect of Abstractions and Water Supply

Most of the water abstracted in this catchment is taken from reservoirs and rivers. Only a small proportion is taken from the ground (see 6.1 Catchment Facts.) Roadford and Upper Tamar Lake Reservoirs are used for public water supply to large parts of Devon and north-east Cornwall. The management of these reservoirs and other sources has an impact on the natural water environment.

Most of the issues in the catchment concern public water supply abstractions. In the following table we highlight issues concerning the current impact and operation of public water supply schemes and issues relating to the need to meet future demand for water. We forecast future demand to predict the timing and size of any shortfall in supply through to the year 2021.

The catchment currently has a surplus of licensed resources, assuming the water company is able to fully abstract it all. The 1995 drought has not altered our view that there is a licensed resource surplus in the catchment. However the water company have identified a number of capital investment needs to enable it to take a much greater proportion of its licensed resource than it is currently able to do. Necessary works include intake and

distribution system improvements. We have also sought undertakings from the water company regarding operational improvements aimed at minimizing the wastage of licensed resources. We intend to ensure that these are incorporated within the relevant Operating Agreement (Action 37.3). Looking to the future, under the worst case scenario of high growth in demand without demand management or leakage control measures, a shortfall will arise in 2015. Under a low growth scenario incorporating demand management and leakage control measures there will not be a shortfall until well beyond 2021.

Whatever the precise pattern in future demand growth the NRA must plan for future demand. Actions 37.1, 37.2 and 37.3 represent the NRA's order of preference for meeting future demand before developing new resources.

We will discourage the development of new resources until demand management, leakage control and resource management measures have been implemented.

Management of Lower Tamar Lake received much comment from consultees. Since production of the Consultation Report an environmental assessment has been carried out by SWWSL, though only one option, the lowering of the lake, was explored in detail. We have commented on the assessment. No long term solution has been decided as SWWSL are awaiting proposals from the Bude Canal Trust Ltd, who have stated that a proper examination of all options is needed, particularly to consider the implications for the restoration of the Bude Canal (see Action 25.3). SWWSL has pointed out that works required for the dam to meet current legislation need to be completed by winter 1996/97. The NRA will seek to balance our responsibilities to promote water based recreation with other statutory duties.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 7a Operation and development of Roadford Reservoir within the Roadford Strategic Supply Zone								
Action 7a.1 Model the Roadford Strategic Supply Zone.	NRA (SWWSL)	20k NRA only	●	●				This will determine drought reliable yield, best use of available resources and future developments. This work supports Actions 7b.1 and 37.3
Action 7a.2 Review Roadford Scheme operating rules and revise operating agreement as necessary.	NRA SWWSL	15k NRA only	●	●	●	●	●	This will be supported by the modelling work in Action 7a.1. We will develop revised operating rules for public water supply, Fisheries Water Bank and the Enhanced Flow Programme incorporating lessons learned from the drought of 1995. These rules will contribute to the efficient use of water resources in the catchment and provide opportunities for improving the water environment. Operating rules will be incorporated into a revised Operating Agreement/ Management Strategy. This work will support Action 37.3.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 7b Impact of Roadford Reservoir and Gunnislake abstraction on the Tamar Catchment								
Action 7b.1 Review and revise as necessary, the NRA <i>Position Statement for the Roadford Investigations</i> .	NRA (SWWSL)	15k NRA only	●	●	●	●	●	Our Position Statement focuses on issues unresolved at the 1978 Public Inquiry and represents our view of the work necessary to: a) reach reasoned conclusions relating to the optimal management of the Roadford Scheme b) aid determination of a revised Gunnislake abstraction licence no later than 2002. The Statement draws upon the results of water quality, ecological, fisheries and sedimentation studies including the work arising from Actions 7a.1, 7a.2 7b.2 and 19.1.
7b.2 Full review of fisheries data and report to Roadford Fisheries Liaison Committee.	NRA		●					
New Issue 37 Future Demand for water in the Roadford Strategic Supply Zone								
Action 37.1 Manage demand	SWWSL (NRA)	5k NRA only	●	●	●	●	●	Demand management involves a number of options including metering and efficient water use. We encourage metering in all new domestic properties and selective metering in areas where resources are under stress. Our work to address Issue 7b will help to establish if resources are under stress in this catchment. The NRA will continue to promote the efficient use of water by domestic and industrial users. See 'Tomorrow's Water' (Ref.2) for more details. Before considering applications for additional public water supply abstractions, we expect the water company to set economic leakage targets. We will audit these targets and expect SWWSL to demonstrate to us that they are being achieved. See 'Tomorrow's Water' for more details.
Action 37.2 Control leakage	SWWSL (NRA)	10k NRA only	●	●	●	●	●	

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Action 37.3 Review and revise an Operational Management Strategy (OMS) for Roadford Strategic Supply Zone (Resource management).	NRA SWWSL	10k NRA only			●	●	●	An OMS will be developed from the results of Actions 7a.1 and 7a.2. It will be reviewed at regular intervals to ensure that the operation of the zone keeps pace with any growth in demand whilst taking account of environmental considerations.
Action 37.4 Review potential for Roadford Pumped Storage Scheme (Resource development).	NRA SWWSL	5k NRA only	●	●	●	●	●	This scheme would provide an additional resource by pumping water to Roadford Reservoir from elsewhere in the catchment at times of high river flows. A more attractive option than a new reservoir development, it would make use of an existing reservoir and defer any need for new reservoir developments in the Zone well beyond 2021. The option has yet to be investigated in depth but initial estimates suggest the scheme could provide a reliable yield of 50 Ml/d.
Issue 8 Lack of knowledge of ecological flow requirements								
Action 8.1 Complete national R&D study entitled 'Ecologically Acceptable Flows', Phase 2. Cost is for whole project.	NRA	471k	●					A user manual and R&D report will be available in July 1996. This will help NRA staff to evaluate the ecological impact of altered flow regimes, either due to historic or proposed abstractions.
Action 8.2 Consider R&D results when available and if appropriate apply to the Tamar Catchment	NRA (abstractors)	5k		●	●	●	●	
Issue 9 Low flows downstream of Lower Tamar Lake								
Action 9.1 Audit compensation flow from Upper Tamar Lake and monitor outflow from Lower Tamar Lake.	NRA (SWWSL)	10k NRA only	●	●	●	●	●	The audit of SWWSL compensation flow measurements from Upper Tamar Lake will ensure compliance with the abstraction licence conditions. Monitoring the outflow from Lower Tamar Lake will provide information on the flows leaving the Lake and entering the Upper Tamar River system. This will be related to fisheries data to establish the nature and impact of the flows.
Action 9.2 Monitor juvenile salmonid production	NRA (SWWSL)	3.6k NRA only	●	●	●	●	●	
Issue 10 Management of Lower Tamar Lake water levels								
Action 10.1 Secure the future of the lake under current legislation								The NRA has considerable concerns over the future management of the lake, particularly the impact of any actions on flows downstream of the lake (see Issue 9). Any proposal would be subject to full review as we have a number of statutory interests. Any review would take into account external interests as expressed in responses to the Freshwater Tamar and Tributaries Consultation Report.
Action 10.1.1 Carry out works to maintain the lake at its current level	Bude Canal Trust Ltd	U	●					
Action 10.1.2 Lower the level of the lake and carry out mitigation works.	SWWSL	U	●					

7.3. RECREATION

Many people spend their spare time enjoying our rivers. Where we can we try to improve facilities for these people whilst ensuring that water resources and environmental interests are properly protected.

There are long term plans to develop major footpaths along the Tamar Valley (Tamar Trail) and the Bude Canal, where major restorations are planned. Development could also be of archaeological significance and a boost for the local economy (see Appendix 2, page 21) for more information. There may also

be significant implications for water use (see Issue 10). The catchment is of international importance for otters and any increase in human activity may disturb these secretive animals. Evidence from other recreational routes shows the necessity of leaving at least one river bank quiet and free from human disturbance. A pre-scheme survey is recommended to highlight particularly sensitive areas. The NRA recreation survey will seek to identify where additional facilities or access could be provided and promote provision through landowners and recreational bodies and agencies. The canoe access agreement on the River Tamar prevents conflict between competing uses. The NRA will seek to promote its use.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96	97	98	99	00	
			97	98	99	00	01	
Issue 25 The development of recreational paths								
Action 25.1 Complete NRA water based recreation survey	NRA	1.6k	●					The NRA will seek full consultation over development of any trails. Development should ensure there is liaison with other bodies and land owners to prevent conflicts of interest, optimize resources and avoid duplication of effort.
Action 25.2 Develop the Tamar Trail	County & District Councils	U	●	●	●	●	●	
Action 25.3 Develop and restore the Bude Canal	Bude Canal Trust Ltd	U	●	●	●	●	●	
Issue 26 Promote the responsible use of the River Tamar by canoeists								
Action 26.1 Promote access agreements, such as the one between the BCU and Endsleigh and Lower Tamar Fishing Clubs which enables BCU members to canoe along part of the River Tamar under certain conditions. Action 26.2 Promote implementation of access agreements. Undertake infrastructure improvements for access.	British Canoe Union (NRA, Owners and fisheries associations)	1.6k	●					A river access agreement has been signed. NRA wardens will promote the agreement with canoeists on the river.

7.4. FISHERIES

We aim to maintain, improve and develop fisheries allowing for a sustainable harvest of fish. Many rivers in the catchment support salmon, sea trout and brown trout. There are 179 km of river in the catchment designated under the EC Freshwater Fish Directive. The Tamar is one of the premier salmon fishing rivers in the South West. The natural fishery of the Tamar catchment is considered as being of very high quality, although there is still

potential for improvement, particularly in the Upper Tamar area. There is no recognized coarse fishery on the rivers in the catchment.

Actions outlined below will be used to set salmonid fish density targets and to improve habitat to increase spawning. Success should be measured by the fish counter and in electric fishing survey results where we achieve or exceed targets.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 14 Assessment and improvement of the natural fishery								
Action 14.1 Monitoring fish populations by use of fish surveys/counters and study of rod and net catch returns.	NRA	217k	●	●	●	●	●	Work will seek to confirm benefits of improvement works which have been undertaken within the catchment. We are unable to definitely commit resources to carrying out Actions. 14.2 and 14.3 within the 5 year period, though some ongoing monitoring will cover 14.2.
Action 14.2 Assess the benefits of habitat improvement schemes.	NRA	10k						
Action 14.3 Determine the maintenance for existing habitat improvement schemes.	NRA	10k						
Action 14.4 Carry out maintenance and further work as appropriate following 14.2 and 14.3.	NRA/Fishing Clubs/Riparian Owners	U						
Issue 15 Decline in catch of spring salmon								
Action 15.1 Contribute to the national NRA investigation into the problem.	NRA	2k	●	●	●	●	●	We are unable to definitely commit resources to carrying out Action 15.3 within the 5 year period. In the meantime voluntary measures will be encouraged.
Action 15.2 Continue monitoring: fish counter/fish scale analysis / rod and net catches.	NRA	5k	●	●	●	●	●	
Action 15.3 Investigate possible byelaws to increase escapement of spring salmon.	NRA	5k						
Issue 16 Decline in sea trout catch								
Action 16.1 Contribute to the national NRA investigation into the decline of sea trout.	NRA	U						
Action 16.2 Utilize Gunnislake fish counter to assess changes in the adult population.	NRA	75k	●	●	●	●	●	
Action 16.3 Scale reading to investigate adult population trends in stock components.	NRA	1k	●	●	●	●	●	
Action 16.4 Continue monitoring of rod catches in relation to environmental factors.	NRA	1k	●	●	●	●	●	
Issue 17 Illegal exploitation of salmonids								
Action 17.1 Minimize the illegal exploitation of fish.	NRA	Core work	●	●	●	●	●	
Issue 18 Introduction of non-native fish species								
Action 18.1 Update database on distribution of non-native species within still water fisheries.	NRA	20k						We are unable to definitely commit resources to carrying out Actions. 18.1 and 18.2 within the 5 year period.
Action 18.2 Regular inspections of still water fisheries.	NRA	25k						
Action 18.3 Monitor and take action where necessary on non-native escapees in natural watercourses recorded during fisheries work, see 14.1.	NRA	See 14.1	●	●	●	●	●	

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issues 19 and 21 Poor salmonid densities and recruitment								
Action 19.1 River Wolf. Continuation of Roadford Environmental monitoring and investigations, in particular effectiveness of Enhanced Flow Programme. Carried out as part of Action 14.1.	SWWSL NRA	See 14.1	●	●	●	●	See also 7b.1	
Action 19.2 River Claw. Investigate possible causes and remedial work.	NRA	2.5k					We are unable to definitely commit resources to carrying out Actions 19.2 to 19.5 within the 5 year period.	
Action 19.3 Upper Henford Water. Investigate possible causes and remedial work.	NRA	2.5k						
Action 19.4 Lockett Stream. Investigate possible causes and remedial work.	NRA	2.5k						
Action 19.5 Ogbeare Stream. Investigate possible causes and remedial work.	NRA	2.5k						
Issue 20 Obstacles to fish migration								
Action 20.1 Virginstow Ford on the River Carey. Investigate the scale of the problem and possible remedial work.	NRA	3k					We are unable to definitely commit resources to carrying out Action 20.1 within the 5 year period.	
New Issue 34 Insufficient knowledge of eel populations								
Action 34.1 Assess the eel population as part of the fisheries monitoring programme, see Action 14.1	NRA	See 14.1	●	●	●	●	The importance of eels as the main food of otters was highlighted by a number of consultees. Population figures are not known. We are unable to definitely commit resources to carrying out Action 34.2 within the 5 year period.	
Action 34.2 Check eel tissue for the bioaccumulation of toxins.	NRA	10k						
New Issue 35 Requirement to study EC Habitats Directive fish species								
Action 35.1 Assess and report on populations of bullhead, atlantic salmon, brook lamprey, sea lamprey and grayling, where possible, as part of the fisheries monitoring programme, see Action 14.1.	NRA	See 14.1	●	●	●	●		

7.5. LANDSCAPE, WILDLIFE AND ARCHAEOLOGY

We aim to ensure that rivers and wetlands are not degraded through neglect, mismanagement, or insensitive development. The catchment is valued for its beautiful scenery and rich variety of wildlife. The catchment contains internationally important Culm grassland, wet acidic grassland that supports a wealth of plant and animal life. Dartmoor National Park lies on the east of the catchment. Bodmin Moor and the Tamar Valley (newly designated) are designated as Areas of Outstanding Natural Beauty.

Key landscape issues relating to the water environment have been raised in other documents (Ref. 4, 5, 6). Principally these are the maintenance of distinctive features, protection from major development and promotion of suitable species and habitats alongside rivers. The NRA is playing its part in this in Issues 11, 12, 24 and 36.

We need to maintain biodiversity in the catchment. In December 1995 the Government published the UK Biodiversity Action Plan, containing action plans for 116 species and 14 habitats. In 1996 English Nature will produce an agenda for fresh waters which will also contain biodiversity targets. Over the 5 year period of this plan we will investigate the presence of freshwater related species and habitats and seek to implement the action plans. Culm grassland (now proposed as a candidate Special

Area of Conservation - SAC - under the EC Habitats Directive) will be specifically targeted in the catchment for conservation and restoration. In the meantime we will continue to encourage sound management of rivers and wetlands to promote wildlife conservation in balance with other river uses.

We are working on our own national method (River Habitat Survey) of evaluating rivers for conservation value and are working with the Cornwall Wildlife Trust to help gather information on habitat change in the catchment. Both activities will identify areas for conservation, enhancement or restoration. There are two new issues: Issue 38, which seeks to adopt recommendations for the enhancement of specific species and habitats, and Issue 39.

Success of projects will be measured in quantifying the loss of river, wetland and water related habitats and drawing up plans for restoration of similar features or sized areas. Preventing the loss of important native conservation features due to invasive species will indicate the success of Action 23.1.

There is significant archaeological interest in the catchment. During NRA capital and maintenance works we shall ensure that sites of historic interest are protected. We will encourage others who carry out work in the water environment to adopt similar practices.

Action	Lead Body (Other)	Cost	Financial Year						Notes
			96	97	98	99	00	01	
Issue 11 Protection and enhancement of riparian strip									
Action 11.1 Carry out NRA works to best practice. See also Issue 13.	NRA	Core work							The value of a riparian strip in improving water quality and providing habitat for wildlife was suggested by a number of consultees. We are to produce a document in mid 1996 which describes types of buffer zone and their different applications. This will complement a national NRA R&D project which will be carrying out field trials on buffer zones. A review of this work will be carried out by area staff and recommendations implemented as appropriate. The Westcountry Rivers Trust 'Tamar 2000' initiative may go some way to addressing this issue in the catchment.
Action 11.2 Encourage land owners to protect riparian strip.	NRA (LPAs)	Core work							
Action 11.3 Restore/replant riparian strip or wetland	NRA (land owners MAFF/EN/ NRA/CoCo /LPAs NFU/FWAG CWT/DWT)	U							

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96	97	98	99	00	
			97	98	99	00	01	
Issue 12 Protecting and recreating wetlands, especially Culm grassland								
Action 12.1 Complete the inventory of all Cornish Culm grassland.	NCDC (NRA /CWT/EN)	2.5k						A number of initiatives are underway to safeguard and enhance areas of Culm grassland. It is important that efforts by individuals, groups and bodies are integrated to maximize their benefit.
Action 12.2 Develop a joint strategy to conserve and enhance areas of conservation importance including Culm grassland.	EN/NRA CoCo/LPAs NFU/FWAG CWT/DWT	Core work	●	●	●	●	●	
Action 12.3 Support and promote the use of schemes such as Countryside Stewardship or Wildlife Enhancement Scheme to encourage land owners to conserve habitats and/or recreate them.	As 12.2	Core work	●	●	●	●	●	
Action 12.4 Protection of sites through the planning process.	LPAs	Core work	●	●	●	●	●	
Action 12.5 Provide advice to landowners.	As12.2	2k						
Issue 22 Review status of otters in the catchment to ensure its needs are protected								
Action 22.1 Otter recording; monitoring and post mortem examinations through the National NRA Otter Strategy.	NRA (CWT/DWT/Other conservation bodies)	Core work	●	●	●	●	●	The impact of otters on fish populations and vice versa was raised by consultees, see new fisheries issue. Leaflet is due to be published in 1996. Contact local NRA or MAFF for copies.
Action 22.2 Develop an area based strategy for otter conservation.	NRA/MAFF							
Action 22.3 Promote NRA/MAFF 'Otter advice for Landowners' leaflet.								
Issue 23 Non-native Invasive species								
Action 23.1 Take action on river stretches which we annually maintain or give advice on local problems including the use of herbicides. We do not plan to carry out any systematic control in this catchment.	NRA (Riparian Owners)							Our leaflet -'Guidance for the control of invasive plants near watercourses' explains how these plants can be controlled. The known impact on this catchment is low. Any eradication measures will require the co-operation of others to co-ordinate any campaign.
Issue 24 Lack of detailed archaeological information								
Action 24.1 Undertake archaeological assessment in relation to NRA works.	NRA/County Archaeology Sections	2k						
New Issue 38 The need for enhancement of conditions for certain species and habitats								
Action 38.1 Adopt appropriate recommendations from the Rivers and Wetlands Trust Project.	NRA (Other conservation organizations)	U	●	●	●	●	●	The Rivers and Wetlands Trust (funded by various bodies including the NRA) is developing targets and actions for the conservation and promotion of habitats and species.
New Issue 39 The need to complete the Devon Wildlife Site survey for Torridge and West Devon Districts								
Action 39.1 Complete the survey.	DWT	6k	●					Assistance from others will be required to complete the survey.

7.6. FLOOD ALLEVIATION AND CONTROL

We aim to provide effective defence for people and property against flooding from rivers and to provide adequate arrangements for flood forecasting and warning. We take account of economic and environmental considerations when assessing flood defence operations. All rivers are classified as either 'main river' or 'ordinary watercourse' (sometimes referred to as 'non-main river'). We supervise all flood defence matters on all watercourses but have permissive powers to carry out

work on main rivers. Local authorities have permissive powers for flood defence on ordinary watercourses.

As part of our ongoing work to prevent development increasing flood risk we give development control advice to local planning authorities. Issue 36 is a new issue.

Success will be measured in provision of flood warning 24 hours a day, flood protection schemes operating to their design, the ability of rivers to run free of obstruction during flood, and no increase in downstream flooding from new developments.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 13 Removal of blocking trash dams and trimming of overhanging trees								
Action 13.1 Clearance undertaken; work carried out to NRA best practice.	NRA							Best practice being developed as part of Seaton, Looe and Fowey Action Plan (Ref. 3.).
Issue 27 Fully integrated Flood Defence Management Manual and supporting system to improve targeting of resources to the greatest needs								
Action 27.1 Develop system.	NRA	U	●	●	●			A nationally developed system to be provided to region early 1997.
Action 27.2 Undertake regional asset survey.	NRA	108k	●					Cost quoted is for all Devon and Cornwall.
Issue 28 Identification of flood risk to Planning Authorities								
Action 28.1 To provide flood plans for the entire catchment area.	NRA	30k	●	●	●	●		The pilot scheme in St Austell has been successfully completed. Further work elsewhere in Cornwall is taking place in 1995/96. The timing of work in this catchment has yet to be decided.
Issue 29 Increased surface water runoff to Lowley Brook								
Action 29.1 The NRA will liaise with NCDC and developers to control rate of runoff into Lowley Brook.	NRA (NCDC /developers)	Core work	●	●	●	●	●	
Issue 30 New development in floodplains								
Action 30.1 Work with LPAs during preparation of Local Plans to minimize development in the floodplain.	NRA (District Councils)	Core work	●	●	●			Flood plans (Action 28.1) will probably be produced too late to influence the current round of plans. However, we will continue to highlight the importance of allowing the floodplain to operate naturally in conjunction with the river channel.

Action	Lead Body (Other)	Cost	Financial Year					Notes
			96 97	97 98	98 99	99 00	00 01	
Issue 31 Need to develop Water Level Management Plans for Brendon and Vealand Fen and at Kingford Fen								
Action 31.1 Develop Water Level Management Plans for these sites taking account of the needs of farming, flood defence and wildlife.	NRA	20k	●	●				Plans to be produced by 1998.
Issue 32 Need to update NRA database of flood risk locations for potential capital works								
Action 32.1 On completion of section 105 survey an assessment of the need for further capital works will be made.	NRA	U			●	●		Timing dependent on Action 28.1.
Issue 33 Incomplete flood warning system								
Action 33.1 Undertake Level of Service study.	NRA	U	●	●	●	●		Study to be carried out following Action 28.1
Action 33.2 Install additional flood warning stations on the Rivers Lyd and Kensey.	NRA	30k	●					Work dependent on negotiations with landowners and MAFF grant.
New Issue 36 Construction of inappropriate structures in the river channel								
Action 37.1 Prepare a guidance policy on the design and placement of croys (boulders placed in the channel to create pools).	NRA	3k			●	●		Croys can improve the fishery but may also cause damage.

APPENDIX 1: TOPICS AND ISSUES TABLE

TOPIC	Wildlife	Fishing	Salmonid Fishery	Water Quality	Acidification	Nutrient Levels	Metals	Invertebrates	Low Flows	Drinking Water Supply	Sewerage	Building/Development	Flooding	Recreation	Culm Grassland
1. Effect of agricultural activity on water quality	●		●	●		●		●							
2. Effect of local geology/abandoned mines on water quality	●		●	●			●	●		●					
3. High loads of Annex 1A substances in River Tamar				●		●									
4. Trophic status of Tamar Lakes and Catchment	●		●	●		●									
5. High levels of suspended solids in Tamar catchment			●	●											
6. Acidic runoff			●	●	●										
7a. Operation and development of Roadford Reservoir			●						●	●					
7b. Impact of Roadford Reservoir			●						●	●					
8. Lack of knowledge of ecological flow requirements	●								●	●					
9. Low flows downstream of Lower Tamar Lake	●		●						●						
10. Management of Lower Tamar Lake water levels	●	●		●					●					●	
11. Protection and enhancement of riparian strip	●														
12. Protection and restoration of wetland, especially Culm grassland	●														●
13. Trash dam removal and tree trimming	●		●										●		
14. Assess and improve the natural fishery		●	●												
15. Decline in catch of spring salmon		●	●												
16. Decline in sea trout catch		●	●												
17. Illegal exploitation of salmonids		●	●												
18. Introduction of non-native fish species	●	●	●												
19 & 21. Poor salmonid densities and recruitment	●	●	●												
20. Obstacles to fish migration			●												
22. Review status of otters in catchment	●														
23. Non-native invasive species	●														
24. Lack of detailed archaeological information												●	●	●	
25. Development of recreational paths	●													●	
26. Promote responsible use of R. Tamar by canoeists														●	
27. Flood Defence Management System													●		
28. Identification of flood risks to Planning Authorities												●	●		
29. Increased surface water runoff to Lowley Brook												●	●		
30. New development in flood plains												●	●		
31. Water Level Management Plans for Brendon and Vealand Fen and Kingford Fen	●												●		●
32. Updating NRA database of flood risk locations												●	●		
33. Incomplete flood warning system													●		
34. Insufficient knowledge of eel populations	●	●													
35. Requirement to study EC Habitats Directive fish species	●		●												
36. Construction of inappropriate structures in river channel	●	●	●									●	●		
37. Meeting future demands for water in Roadford Strategic Supply Zone	●	●	●	●					●	●		●			
38. Need for enhanced conditions for certain species and habitats	●		●					●							
39. Complete Devon Wildlife Site Survey	●														●
40. High levels of biocides on River Tamar	●	●	●	●						●					

APPENDIX 2: RESPONSES RECEIVED THROUGH CONSULTATION

We received forty two responses (some by telephone) to the Consultation Report. Twenty from members of the public and twenty two from the following organizations:

National Organizations

Sports Council
Farming & Wildlife Advisory Group
Forest Enterprise
Countryside Commission
Ministry of Agriculture, Fisheries and Food
Ramblers Association
ETSU (part of the Department of Trade and Industry)
National Farmers Union

Regional and Local Organizations

Bude Canal Society
Tamar and Tributaries Fishing Association
Devon Wildlife Trust

South West Water Services Ltd
Launceston Anglers Association
Tarka Project
North Cornwall Countryside Service

Parish Councils/District Councils

Torrige District Council
North Cornwall District Council
Dartmoor National Park
Lewannick Parish Council
Broadwoodwidge Parish Council
Altarnun Parish Council
Bratton Clovelly Parish Council

The comments fell into three main categories, layout of the document, information accuracy, and targets and issues. Some of the comments and concerns are summarized below.

1 Water Quality

Metal pollution from mines.

Some people expressed concern that by derogating or setting aside data (see pages 4 and 6 for an explanation of these terms) for these metals in some rivers the NRA was effectively giving up its effort to limit the impact of pollution from abandoned mines. Concerns were also expressed over the combined effect of a number of different metals.

Our comments:

There is a long history of mining in this area. Underground workings can be extremely complex and their extent is often unknown. Land which drains to watercourses can also be contaminated by spoil tips but again the extent of this is rarely known. For these reasons identifying the source of metal pollution in these areas is often impossible.

If we report to the DoE that EC Directive standards have been exceeded we must identify and control the sources of pollution. Where EC Directive standards, in particular those for pH and metals, are not met due to natural sources of metal enrichment, we can apply for a derogation. This means that we will continue to monitor and report concentrations of derogated substances. However, the derogation acknowledges that although we understand why these substances exceed their standards we cannot control their release into the environment.

Although we have derogated standards for metals in parts of this catchment we will continue to monitor metal concentrations and use our powers to control inputs of metals from other sources.

River Quality Objectives (RQOs)

Some consultees questioned the RQOs for individual stretches,

suggesting they should be set higher, or that the achievement date should be brought forward.

Our comments:

In general the objectives set are at least RE2 which is water of good quality, suitable for all fish species. Where the higher RE1 can be realistically achieved this has been set as an objective. RE1 is not a realistic objective for some river stretches, depending on topography, geology and land use. Specification of RE1 on some stretches receiving effluent discharges cannot be considered at present as the NRA is constrained by national agreements not to impose costs on water companies outside their committed expenditure.

We will not be bringing forward the compliance dates on any stretches as we feel that they can only realistically be achieved in the stated time-scale. However, work has already begun.

Effluent Disposal

Consultees stated that there is an impression amongst the farming community that whilst there is pressure on farmers to comply with discharge consents there is a more tolerant attitude where sewage treatment works are concerned. One consultee made comments on alternative methods of disposal such as biogas digesters.

Our comments:

Farmers do not generally have discharge consents. We are reviewing such consents where appropriate. Where the NRA issues consents we require compliance with the consent conditions by everyone. Pollution prevention through consent conditions and giving advice on waste handling is a core duty of the NRA.

Consultees were concerned that Dissolved Oxygen levels were low below Roadford Reservoir and that biological scores on Penpont Water are relatively poor.

Our comments:

We have monitored oxygen levels below Roadford Reservoir and have found no problem. Equipment at the reservoir is used to ensure that water released contains adequate Dissolved Oxygen. Penpont Water has a very good invertebrate population and the decline that has been measured is not significant.

2. Water Quantity

Concerns were raised by several consultees about the adequacy of reservoir supplies in drought conditions.

We work with the water company to ensure that best use is made of available water resources. The actions listed under Issues 7 and 37 on page 9 deal in detail with the management of water resources.

3. The Countryside, Recreation and Access to Rivers.

Many consultees commented on the need to manage countryside access and encourage people to appreciate rivers. We also received comments on the potential conflict between increasing recreational access and conserving wildlife habitat. Consultees also commented on the omission of a reference to Launceston Steam Railway as a recreational facility which runs in part alongside the River Kensey.

Our comments:

We have duties to promote recreation however these are limited, particularly regarding land based recreation, and we recognize that access could not be achieved without the consent of landowners.

We are aware of possible conflicts between uses and we look at each proposal on a site specific basis to ensure correct management and zoning of uses.

Tamar Lakes and Bude Canal

Many consultees raised issues concerning the Tamar Lakes, particularly the proposal to drain Lower Tamar Lake, which is a valued conservation and recreational asset. The presence of algal blooms in the lakes, and then into the River Tamar was highlighted by some, as was the lakes ability to supply water to the Bude Canal. The Bude Canal Trust Ltd has plans to restore the Canal in partnership with local authorities. It is acquiring the feeder section from North Cornwall District Council. The Canal Trust comments referred to the Canal's value as a local recreational and environmental asset, a part of the industrial archaeological heritage of North Cornwall and potential for restoration to benefit the local economy on the basis of experience elsewhere. Further studies are proposed to determine feasibility, costs and benefits and identify sources of funding.

Our comments:

The NRA is in consultation with the Bude Canal Trust Ltd. Actions and proposals from other groups concerning the Tamar Lakes and the Bude Canal are detailed in Actions 10.1 and 25.3, pages 11 and 12.

4. Fisheries.

Consultee comments ranged from compliments about the quality of our work, saying that we do not publicize our

activities enough, to comments that thought we do not do enough fisheries work. Gravel rehabilitation and the impact of lower flows, particularly due to reservoirs was also raised.

Our comments:

The level of fisheries work that we can undertake is set by our budget. We prioritize our work once this is known. Grant in Aid money to fund NRA fisheries work is currently reducing. The NRA is aware of the potential impacts of reservoirs on fisheries and seek to prevent, limit or compensate for them where we can. See Issues 14 to 21, 35 and 36 on pages 13, 14 and 18.

Some consultees questioned our salmonid re-stocking policy.

Our comments:

It is not NRA policy to artificially stock rivers, the main objective being habitat improvement. Stocking is undertaken where NRA fisheries surveys indicate that fish stocks are at levels where they cannot adequately self regenerate after a fish kill. The stocking of salmonids in the Tamar system in recent years has been using surplus fish from the Roadford Mitigation programme.

5. Landscape, Wildlife and Archaeology.

A number of organizations and individuals commented on these topics. Consultees encouraged us to do all that we could to support planning authorities in their work to plan and regulate development so that rivers and wetlands would be protected. Some consultees felt that the NRA should do more and encouraged us to set targets for species or habitat conservation in our Catchment Management Plans.

Our comments:

There are various initiatives developed, or being developed, to set species and habitat conservation targets. The NRA is involved with many other agencies in this process. When these targets are set and agreed we will promote them in Catchment Management Plans. Issue 38 seeks to adopt more specific, catchment based targets.

It was pointed out that in the Consultation Report we incorrectly said that North Cornwall District Council were proposing three separate areas for Area of Great Landscape Value designation. In fact there is just one area being proposed, contained between North Tamerton, Stoke Climsland and the Inny Valley.

Many consultees raised concerns about otters in the catchment including questions on their food source.

Our comments:

Otters are as likely to use still waters for feeding as running water so lack of fish in the river does not necessarily indicate a lack of food supply. Otters are more likely to use still waters and marshes when a river is in spate. It is believed that the main food source is eels much of the time rather than fish. For actions concerning otters and their habitat see Issue 22, page 16. See also Issue 34, page 14 for information on eels.

Consultees raised concerns about Culm grassland and its preservation.

Our comments:

The NRA considers all Culm grassland important not just areas protected by conservation designations such as SSSIs. See Issue 12, page 16.

Some consultees were concerned and/or wanted information on buffer zones.

Our comments:

The NRA accepts that further research is required to test the performance of buffer zones in preventing pollution. We also need design criteria for different situations. This has been recognized and we are progressing with a national R&D project. Work is also being undertaken by external groups, some part funded by the NRA.

Archaeology

Consultees raised concerns about the lack of archaeological information available in the Report.

Our comments:

The NRA recognizes the importance of archaeology, and we will support any initiative to improve the data available on archaeology in the catchment.

Bank Erosion

Consultees raised concerns over bank erosion and the causes. It was highlighted that cattle having access to the river was an essential part of farming which was thought to have little impact on anglers. Any voluntary restrictions would have an impact on demand for direct abstraction or public supplies as well as a cost for the farmer. Fencing could create land and river management problems as well as giving the incorrect impression of there being a Public Right of Way.

Our comments:

Instability of river banks can be aggravated by cattle access. Subsequent high flows then wash away unstable areas. We will continue to seek voluntary support on this matter from landowners and farmers.

6. Flood Prevention and Control.

Consultees raised concern about the effects of flooding on agricultural land.

Our comments:

The NRA acknowledges the effect of flooding and waterlogging of agricultural land when it calculates standards of service.

Some consultees were concerned about the impact of removing trash dams for both flood defence and fisheries work.

Our comments:

Action 13.1, page 17 seeks to address these concerns.

APPENDIX 3 RIVER ECOSYSTEM USE CLASSES

Class	Description
1	Water of very good quality suitable for all fish species.
2	Water of good quality suitable for all fish species.
3	Water of fair quality suitable for high class coarse fish populations.
4	Water of fair quality suitable for coarse fish populations.
5	Water of poor quality which is likely to limit coarse fish populations.

ABBREVIATIONS

BC	Borough Council
BCU	British Canoe Union
CLA	Country Landowners Association
Co Co	Countryside Commission
COGAP	Code of Good Agricultural Practice
CWT	Cornwall Wildlife Trust
DoE	Department of the Environment
DWT	Devon Wildlife Trust
EC	European Commission
EN	English Nature
FWAG	Farming and Wildlife Advisory Group
GQA	General Quality Assessment
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
NCDC	North Cornwall District Council
NFU	National Farmers Union
NRA	National Rivers Authority
NWC	National Water Council
OMS	Operating Management Strategy
pH	(measure of acidity)
R&D	Research and Development
RE	River Ecosystem, RE1, RE2 etc.
RQO	River Quality Objectives
SSSI	Site of Special Scientific Interest
SWWSL	South West Water Services Limited
U	Unknown (cost)

UNITS

km	kilometre
km ²	kilometre squared
M	million
m	metre
ML	Mega Litre (equals 1 million litres volume)
ML/d	Mega Litres per day

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4. The Torridge Landscape, An Integrated Assessment of the District's Natural Character. Chris Blandford Associates for Torridge District Council et al. December 1994.
5. Taking the Tamar Valley Towards the Year 2000, Tamar Valley Countryside Service, 1994.
6. The Tamar Valley Landscape, Countryside Commission, CCP 364, 1992.



FOREWORD

This Action Plan for the Freshwater Tamar and Tributaries Catchment is the second in a set of six Action Plans covering the National Rivers Authority Cornwall Area.

The plans embody the National Rivers Authority's commitment to improving the water environment of Cornwall and West Devon.

The Freshwater Tamar Catchment is the largest catchment in Cornwall Area and is important in terms of water resources/water supply as well as providing a nationally renowned salmon and sea trout fishery. Water quality is clearly important in relation to these uses. Issues arising from conflicts between these uses and from land use in the catchment are addressed in this plan.

We are very grateful for the contributions made during the consultation period and are convinced that they represent the spirit of partnership that will be required to implement the plan.



Rob Robinson

Area Manager (Cornwall)



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