

# TAW/TORRIDGE ESTUARY CATCHMENT MANAGEMENT PLAN ACTION PLAN



**NRA**

*National Rivers Authority  
South Western Region  
March 1995*

## Foreword

The Taw and Torridge Estuary is one of the jewels in Devon's water environment. An area of outstanding ecological interest and scenic beauty, it provides an important resource for all those who live, work and play in and around the estuary.

The estuary has undoubtedly been under pressure from various sources in the recent past. But the corner has been turned and now following a period of extensive public consultation an action plan has been prepared, to drive progress forward. This document should be read in conjunction with the local authorities management plan.

The NRA is very grateful for the contributions made during the consultation period and is convinced that they represent the spirit of partnership that will be required to fulfil the plan.

I commend the programme of action which has all the ingredients to sustain and improve this special water environment into the next century.



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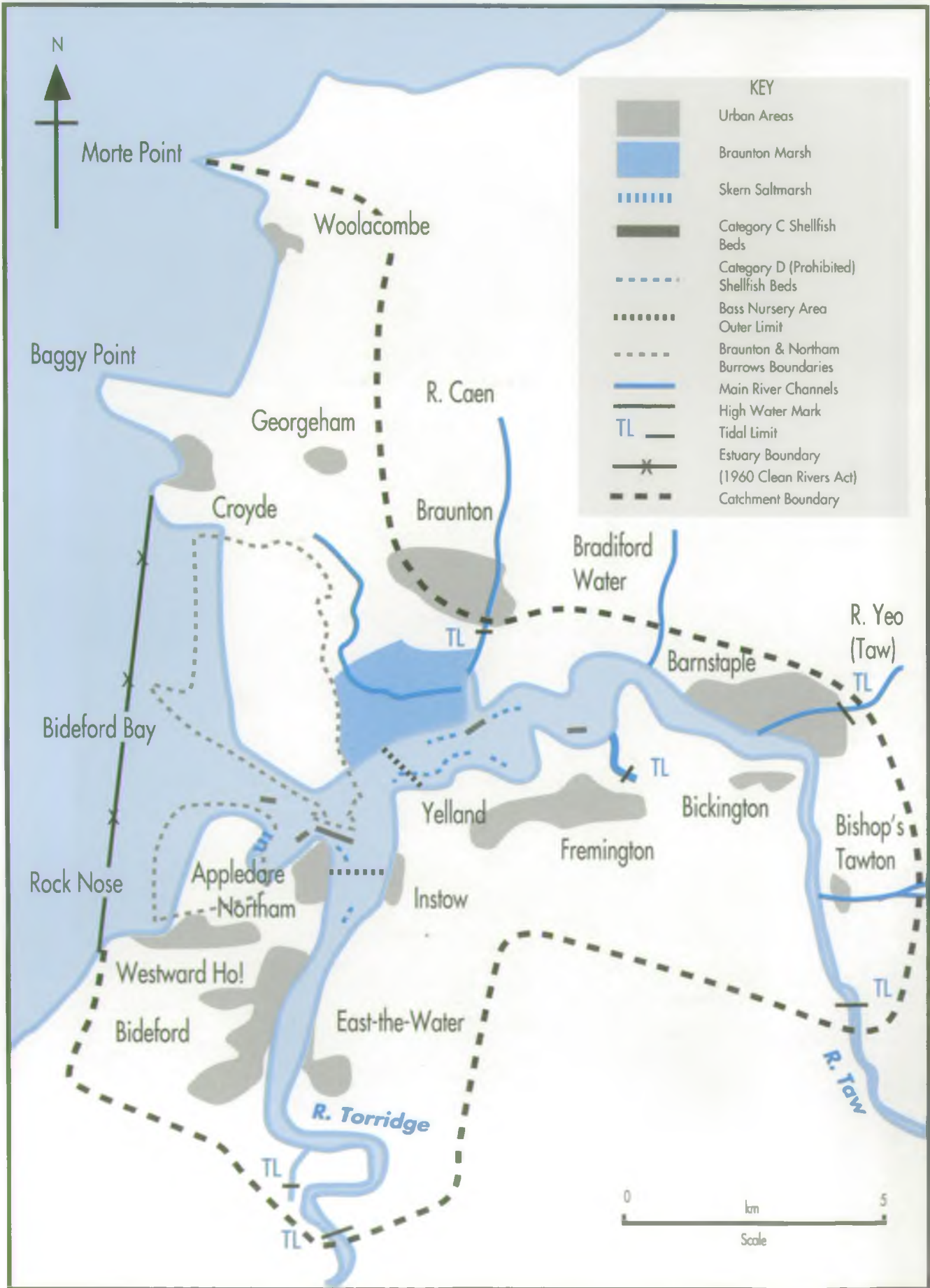
# TAW/TORRIDGE ESTUARY CATCHMENT

## Figure 1 Effluent Disposal, Flood Defence and Mineral Extraction Issues Map



# TAW/TORRIDGE ESTUARY CATCHMENT

## Figure 2 Natural Resources Issues Map





No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future	
			Lead	Other		94	95	96	97	98	99		
1.	Poor Effluent Quality	a) ● DOE to decide on proposed review of existing Ashford STW consent	DoE		None		●						
		b) ● NRA to determine consent for South scheme discharge to ensure compliance with the EC UWWTD	NRA			●							
		● SWWSL to carry out capital works to ensure consent compliance on South scheme discharge	SWWSL		None	●	●	●					
		c) ● NRA to determine consent for Croyde STW to ensure compliance with EC UWWTD	NRA										By 2005
		● SWWSL to carry out capital works at Croyde under AMP2 to ensure compliance with new consent (see Appendix 2)	SWWSL		None								By statutory completion date 2005

## 2. Further Conservation of Important Species and Habitats

There are a number of important wildlife habitats in the estuary. Many are linked to the water environment. We will use our powers and influence to sustain an ecology appropriate for the estuary and to safeguard the identified special conservation interests. As the water environment continues to improve, opportunities to promote conservation interests may also increase.

Concern has been expressed over the decline in ecological value of drainage ditches on Braunton Marsh and measures are proposed to address this problem.

Saltmarsh is a restricted habitat in Devon and a large proportion of the County's resources lies within the Tav/Torridge Estuary. Targets need to be set to maintain and, where possible, increase the extent of this habitat.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future
			Lead	Other		94	95	96	97	98	99	
2.	Further Conservation of Important Species & Habitats	● Support initiatives that encourage less intensive land management, especially those targeted on wetlands	NRA	MAFF, CoCo, EN, LA's	400 p.a.		●	●	●	●	●	
		● Encourage restoration of wetland habitats when consenting or advising on development proposals or other activities affecting the water environment	NRA	LA's Landowners Developers	100/appropriate application	●	●	●	●	●	●	
		● Seek collaborative opportunities with others to enhance wetland habitats	NRA	LA's NGO's	Unknown	●	●	●	●	●	●	where funds available
	Decline in Ecological Value of Ditches on Braunton Marsh	● Carry out special field investigations:										
		- rapid biological appraisal	NRA		Unknown		■					
		- follow up water quality assessment where necessary	NRA		Unknown		■	■				

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future
			Lead	Other		94	95	96	97	98	99	
2.	Loss of Saltmarsh Habitat	- undertake a full biological survey (including macro-invertebrates, macrophytes, river corridor and habitats) at selected sites in Braunton Marsh to provide baseline data	NRA		Unknown			•	•			
		- assess results of survey	NRA						•	•		
		• Set biodiversity target for saltmarsh; aim to increase area in estuary	EN	NRA DWT	200		•					
		• Contribute to technical studies investigating replenishment of pebble ridge and possible link with sand encroachment on Skern	EN TDC	NRA Others	Unknown		•	•				

### 3. Absence of Comprehensive Ecological Data

The catchment area of the Taw/Torridge Estuary contains a range of habitats. The NRA has benthic invertebrate, fish stock and chemical water quality data, as well as information on the distribution and extent of some natural habitats.

The ecological and conservation status of the area will be influenced by land use changes. We recognize the need to monitor changes at a strategic and at a site specific level. The information gathered will inform us and others of the need to modify direct actions and any authorizations to take account of these changes in status.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future
			Lead	Other		94	95	96	97	98	99	
3.	Absence of Comprehensive Ecological Data	• Aerial survey interpretation of estuary area	NRA		Allocated to River Taw Catchment	•						
		• Develop appropriate macro-invertebrate monitoring programme in estuary	NRA		Unknown		•					
		- Implement programme	NRA						•	•	•	•

### 4. Watersport Pressures on the Estuary

Watersports taking place in the estuary include jetskiing, canoeing, yachting and parasailing and are increasing in popularity. Provision for such activities is important to the tourism industry of the area. However, the increase in popularity may lead to congestion in the estuary and increase conflict with other users, for example, anglers, bathers and conservation interests.

The Estuary Management Plan (Ref. 4) prepared by W S Atkins for English Nature and the planning authorities details many proposals to improve the management of watersports to enhance overall use of the estuary and reduce conflicts. The achievement of this aim and implementation of proposals will, at first, be channelled through the newly appointed Estuary Manager. The NRA has partly funded this post and will ensure full liaison to improve overall management within the estuary.



No	Issues	Actions	Responsibility		Cost to NRA £	Financial						
			Lead	Other		94	95	96	97	98	99	Future
4.	Watersport Pressures on the Estuary	● Initial support for the Taw/Torridge Estuary Manager	NRA	TDC EN NDDC DCC	5000	●						
		● Participate in the Estuary Manager Steering Group	NRA	TDC EN NDDC DCC TTEF	800 p.a.	●	●					

## 5. Restricted Shellfish Farming

Mussels, oysters, cockles and winkles all grow naturally on the many areas of shellfish beds within the Taw/Torridge Estuary. Some active relaying and farming of mussels and introduced Pacific oysters does take place in the estuary although this cannot be exploited commercially at present.

In previous years the commercial exploitation of shellfisheries within the Taw/Torridge Estuary was a valuable industry.

However, shellfish harvesting for commercial purposes is no longer permitted under the EC Shellfish Hygiene Directive (91/492/EEC) (Ref. 5) as the level of microbiological contamination in the shellfish flesh is too high.

Under the EC Shellfish Hygiene Directive shellfish harvesting areas in the Taw/Torridge Estuary have been

identified as either Class C, where shellfish require long periods of relaying prior to marketing, or Class D where shellfish harvesting is prohibited. The Ministry of Agriculture, Fisheries and Food (MAFF) and Department of Health (DoH) share the responsibility as the competent authority for this EC Directive in England and Wales. The NRA has no powers to control the quality of polluting effluents to bring about improvements to the Class assigned to shellfish harvesting areas under this EC Directive.

As the relationship between water quality and levels of bacteria in shellfish is poorly understood, we are contributing funding through our national Research and Development programme to a SNIFFER (Scottish & Northern Ireland Forum for Environmental Research) research project. This project will investigate the relationship between faecal coliform, salmonella and campylobacter levels in mussels and their surrounding waters.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						
			Lead	Other		94	95	96	97	98	99	Future
5.	Restricted Shellfish Farming	● Determine management protocols for shellfish including export of spat etc.	NRA	MAFF EHOs EN Commercial fishermen	Unknown		●	●	●			
		● NRA to contribute through its national R & D programme to a SNIFFER research project to investigate the relationship between levels of bacteria in shellfish and water quality	SNIFFER	NRA	9000		●					

## 6. Impact of Dredging Operations and Sand and Gravel Extraction

The estuary is dredged to maintain the shipping channel to allow the launching of ships from Appledore shipyard. We are concerned that this activity causes pollution, and has an impact on the physical characteristics, sea defences and the ecology of the estuary.

Sand and gravel extraction in the estuary today is only carried out by one operator in the Crow Point area on a part of the foreshore leased by Braunton Parish Council from the Crown Estate Commissioners. Permission for extraction will expire in 1997 and is unlikely to be renewed by Devon County Council. This is because such practices are likely to be environmentally damaging and also weaken the Taw/Torridge Estuary's natural sea defences.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial								
			Lead	Other		94	95	96	97	98	99	Future		
6.	Impact of Dredging Operations and Sand and Gravel Extraction	<ul style="list-style-type: none"> <li>Seek to halt gravel extraction off Crow Point when licence expires and ensure no new sites are introduced</li> </ul>	NRA	DCC	Unknown									

## 7. Reduce Pollution Incidents

Pollution incidents arising from industrial, agricultural and sewage premises are of concern to the NRA. During 1994 ninety-one pollution incidents were reported in this catchment area, of which twelve were farm-related, ten from trades and twenty-three from storm sewage overflows.

We promote pollution prevention and waste minimization measures that will lead to a reduced pollution risk. We will also enforce the relevant legislation to ensure that correct management practices are adhered to.

The Taw/Torridge Estuary is also affected by the condition of water quality in the freshwater catchments that feed into it. Actions for minimizing pollution incidents in these catchments are outlined in the relevant Catchment Management Plans (Refs. 6, 7 and 8).

No	Issues	Actions	Responsibility		Cost to NRA £	Financial							
			Lead	Other		94	95	96	97	98	99	Future	
7.	Reduce Pollution Incidents	<ul style="list-style-type: none"> <li>Carry out task force visits               <ul style="list-style-type: none"> <li>- on Woolacombe Stream, Croyde Stream, River Caen, Knowle Water and Bradiford Water</li> </ul> </li> <li>'Hot spot' visits at sites of known pollution risk</li> <li>Consider LPA development proposals to ensure no deterioration of existing pollution problems occur and to prevent new risks arising</li> <li>Enforce the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 (Ref. 9)</li> <li>Draw up contingency plans for holders of significant quantities of polluting material</li> <li>Monitor and liaise with dischargers and South West Water Services Ltd</li> </ul>	NRA		4000		•	•					
			NRA		1000 p.a.		•	•	•	•	•		
			NRA	LPA	30 per application	•	•	•	•	•	•		
			NRA		5000		•	•	•	•	•		
			NRA	Traders	3400		•	•	•	•	•		
			NRA	Traders SWWSL	1500 p.a.		•	•	•	•	•		

## 8. Implement Water Resources Strategy to Meet Future Needs

We aim to conserve, redistribute, augment and secure the proper use of water resources. One of the key objectives to achieve this aim is to develop and implement a Water Resources Strategy which takes appropriate account of both environmental and abstraction requirements. This strategy will also ensure the priorities for development are justified. We aim to achieve a balance between protecting public water supplies, safeguarding existing water rights and uses, conserving the water environment and protecting conservation and fisheries interests such as

the passage of migratory fish and maintaining water table levels in areas such as Braunton Burrows and Northam Burrows.

The water resources and their use within the catchments feeding into the Taw/Torridge Estuary must also be taken into consideration. Information concerning the water resources status is obtained by monitoring. This monitoring includes that of reservoirs, groundwaters, and surface waters. The scale of the groundwater resource in the estuary has been reviewed and there are no significant resource concerns requiring additional monitoring. The current hydrometric network is considered adequate and will be maintained for monitoring water resources.



No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future
			Lead	Other		94	95	96	97	98	99	
8.	Implement Water Resources Strategy to Meet Future Needs											
	1. Produce a regional Water Resources Strategy	<ul style="list-style-type: none"> <li>The consultation document for Cornwall and Devon Area was published in August 1992 with consultation until 31 October 1992</li> <li>Regional Water Resources Strategy will be published by April 1995</li> </ul>	NRA		Completed							
	2. Implement strategy locally for the Tav/Torridge Estuary	<ul style="list-style-type: none"> <li>The implications of the strategy for the estuary will be reviewed</li> </ul>	NRA		Not available	•						

## 9. Minimize Impact of Abstractions

We aim to limit or regulate abstractions so that detrimental impacts are not caused to water quality, to conservation interests by reduced flows in watercourses or by reduced groundwater levels; or to migratory passage of salmon, sea trout or trout. The south side of the estuary is within an area covered by the Devon River Authority (Exceptions from Control) Order 1970 (Ref. 10), which allows groundwater abstraction without a licence. In the main body of the estuary surface water abstractions are also outside the NRA licensing control. This means that we have little information on the quantity of water

abstracted in these areas. However, it is not thought that these abstractions will have a detrimental impact on the estuary. We have reviewed the scale of all recorded low flow problems due to abstractions in the region and none are located in the estuary. Therefore, there is no further action planned for this issue previously raised in the Consultation Report.

Licences for any future abstractions will only be granted where local resources are available and the need is justified. They will be issued subject to conditions to ensure that they will not cause derogation of existing protected rights, or adversely impact in-river uses or the river environment.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future
			Lead	Other		94	95	96	97	98	99	
9.	Minimize Impact of Abstractions	<ul style="list-style-type: none"> <li>No further action at present</li> </ul>										

## 10. Reported Falling Groundwater Levels in Braunton and Northam Burrows

In recent years concern has been expressed about falling water tables of three sand dune systems in Devon. Substantial drying out of the dune habitats at Braunton Burrows, Northam Burrows and Dawlish Warren is endangering survival of their outstanding wildlife interest. Two of these sites, at Braunton and Northam Burrows, lie within the catchment area of this plan.

The sand dune system of Braunton Burrows occupies some 1,350 hectares and is one of the largest in England whilst that of Northam Burrows is smaller, occupying 258 hectares. Both sites are designated Sites of Special Scientific Interest (SSSI) for their range of successional dune plant communities and unique wildlife. In addition, Braunton Burrows has also been designated a Biosphere Reserve under the UNESCO Man & Biosphere Programme.

Research is necessary to determine the movement of water within the dune habitats. Specifically, the objectives of this research (Sand Dunes Project) are to:

- describe the known and surmised hydrological history of each sand dune system
- explain how the groundwater systems are operating and, if appropriate, assess the main causes of the falling water tables
- recommend appropriate remedial/restorative measures.

Work is most advanced at Braunton Burrows and interim conclusions indicate that the fall in water tables is most likely due to changes in drainage working practices within the marsh.

We will seek to influence with others the implementation of the management plan proposed.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future	
			Lead	Other		94	95	96	97	98	99		
10.	Reported Falling Groundwater Levels in Braunton and Northam Burrows	<ul style="list-style-type: none"> <li>Continue to contribute to a phased research project 'The Sand Dunes Project' being carried out by Plymouth University: <ul style="list-style-type: none"> <li>review existing data</li> <li>identify groundwater level trends</li> <li>identify influences on groundwater levels</li> <li>develop a management plan for the whole system to remedy any groundwater level lowering and prevent further deterioration</li> </ul> </li> <li>NRA will assist in the implementation of the management plan where appropriate</li> </ul>	EN	NRA DCC NDDC IDB	1000 p.a. for project and 2000 for staff time	•	•	•					
			NRA	DCC NDDC IDB EN	Unknown					•	•		

## 11. Impact of Nutrient Enrichment

Nutrient enrichment within the estuary results from a combination of point source discharges and diffuse inputs, including inputs from rivers. The degree of nutrient enrichment varies with the time of year. High levels of chlorophyll have been recorded off Ashford STW and RAF Chivenor during the summer.

Nutrient enrichment can result in increased production of algae and plants and this in turn can affect water and aesthetic quality. If algal production becomes excessive the effects can come into conflict with many of the water uses in the catchment.

We are seeking to identify the sources of excessive nutrients in the Taw/Torridge Estuary and the rivers that

flow into it and their effect in the estuary. These are discussed further in the freshwater Catchment Management Plans (Refs. 6, 7 and 8). This issue may also benefit from related actions in issues 1, 2 and 7.

The Taw Estuary from the tidal limit to Crow Point has been identified for specific monitoring to establish its trophic status. Chemical and biological monitoring data will be collected to investigate the potential nomination of the estuary as a 'Sensitive Area' under the EC Urban Waste Water Treatment Directive (91/271/EEC) (Ref. 3) or a 'Polluted Water' under the EC Nitrates Directive (91/676/EEC) (Ref. 11). Designation of the estuary may provide the legal requirement to either install nutrient removal facilities at STWs discharging to the estuary or to seek advice from MAFF on how to control the application of nitrate fertilizers in the catchment.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future	
			Lead	Other		94	95	96	97	98	99		
11.	Impact of Nutrient Enrichment	<ul style="list-style-type: none"> <li>Collect and analyse chemical and biological monitoring data to investigate the potential nomination of the estuary as a 'Sensitive Area' under the UWWT Directive</li> </ul>	NRA		Chemical 8000 + continuous monitoring if blooms develop + macro - algae surveys + phytoplankton surveys 6,400		•	•					



## 12. Decline of Salmon, Sea Trout and Trout Stocks

Both the rivers Taw and Torridge have seen a decline since the 1950s in salmon, sea trout and trout stocks. This decline is due in part to a number of issues arising in both the estuary and freshwater sections of both rivers (these are covered in the River Taw and River Torridge Catchment Management Plans).

Inhibition of the movement of migratory fish resulting from poor water quality is of concern in the estuary. We have been working to control pollution to ensure the free passage of migratory fish (see Issue 1). Illegal capture of migratory fish occurs in the estuary and the adjacent

coastal waters. Combating this activity to provide increased protection for fish stocks requires a high level of enforcement. The NRA is the Sea Fisheries Authority for the Taw/Torridge Estuary.

Fish stock monitoring and investigations are being used by us to develop an understanding of the stock size and the production capabilities of the catchments. This information will allow the development of management strategies to address stock conservation and exploitation issues.

We are also aiming to limit pollution and improve the estuarine environment to support the fishery in order to provide suitable conditions for the conservation of the species and for sustainable cropping of migratory species by net and rod.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial							
			Lead	Other		94	95	96	97	98	99	Future	
12.	Decline of Salmon, Sea Trout and Trout Stocks	● Maintain catch controls (netting in estuary, rod fishing in both catchments) for the agreed period and then review	NRA	Netsmen Riparian owners	Unknown	●	●						
		● Introduce a bye-law to control estuary sea fishing - gather data and review	NRA		16,000 p.a.	●	●						
		● Conduct a review of NRA SW policy on spring fish in South West (cropping controls etc.)	NRA	Netsmen Riparian owners	Unknown	●							
		● Enforce salmonid fisheries legislation in estuary and out to six mile limit at sea	NRA		20,000 p.a.	●	●	●	●	●	●		
		● Introduce bye-law to control seafishing in the tidal Barnstaple Yeo	NRA		Unknown		●						
		● Introduce legislation with DSFC to limit fixed netting on Saunton Sands	NRA	DSFC	Unknown		●	●					

## 13. Pressure on Bass Fisheries

Bass is the most important exploited sea fish species in the estuary. Bass stocks are under pressure around the British Isles and there is concern about the status of the juvenile stock in the estuary.

The bass fishery is exploited by a small number of fishermen using drift nets. The estuary is used both as a nursery area and for feeding.

A number of conservation measures was introduced by MAFF in January 1990. The minimum landing size was raised from 32 to 36 cm and nets with mesh sizes between 65 and 89 mm may not be used by British fishing vessels. The recent designation of nursery areas within the estuary will protect young bass by the prohibition of detrimental fishing methods during certain months of the year. It is hoped that these measures will allow the bass population in the Taw/Torridge Estuary to recover.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future
			Lead	Other		94	95	96	97	98	99	
13.	Pressure on Bass Fisheries	<ul style="list-style-type: none"> <li>Extend the boundaries of the bass nursery area to cover the whole estuary. Gather data and review.</li> </ul>	NRA	MAFF	16,000 p.a.	●	●	●				
		<ul style="list-style-type: none"> <li>Control 'ground lining' in joint estuary.</li> </ul>	NRA	MAFF		●	●	●	●	●	●	

## 14. Review Flood Defence Operations

The NRA carries out routine maintenance such as grass cutting and screen clearing at its existing flood defence schemes to ensure the free passage of floodwater flows.

Changing attitudes have resulted in the need for reassessment of flood defence operations. Where areas of high conservation value are concerned, careful consideration must be given to the way in which sites are protected or schemes maintained. Environmental assessment is carried out for all new schemes and existing maintenance practices are being reviewed as part of the production of Service Level Agreements.

Phase 4 of the sea defence survey has identified the areas of low standard tidal defences.

We are also developing a national standard of service which once developed will be used to reassess the catchment to determine necessary areas of maintenance and capital works.

Proposals for coastal defence works should be considered within an overall integrated strategy that takes due account of coastal processes and ecological and conservation status. The Shoreline Management Plans being progressed will provide this context. The initial scoping study for Bridgwater and Bideford Bay will establish the relevance of the estuary in this plan.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial						Future
			Lead	Other		94	95	96	97	98	99	
14.	Review Flood Defence Operations	<ul style="list-style-type: none"> <li>Carry out River Corridor Survey (RCS) of main river on Braunton Marsh</li> </ul>	NRA		Completed							
		<ul style="list-style-type: none"> <li>Carry out ecological surveys of all areas subject to scheduled flood defence maintenance</li> </ul>	NRA		Completed							
		<ul style="list-style-type: none"> <li>Incorporate conservation requirements identified by the above actions into the Service Level Agreement</li> </ul>	NRA		4000	●	●					
		<ul style="list-style-type: none"> <li>Complete Service Level Agreement for routine flood defence maintenance operations around the estuary</li> </ul>	NRA		4000	●	●					
		<ul style="list-style-type: none"> <li>Annual inspection of sea defences</li> </ul>	NRA		Unknown		●	●	●	●	●	
		<ul style="list-style-type: none"> <li>NRA to hold discussions with IDB and EN in order to contribute to the production of a Water Level Management Plan for Braunton Swanpool</li> </ul>	NRA	EN IDB	Unknown		●					
		<ul style="list-style-type: none"> <li>Consider relevance of Estuary to the Shoreline Management Plan for Bridgwater and Bideford Bay               <ul style="list-style-type: none"> <li>Phase 1 Complete Scoping Study</li> <li>Phase 2 Additional data collection, coastal process modelling, recommended strategies</li> <li>Phase 3 Agree draft strategies consultation</li> </ul> </li> </ul>	NRA	EN SCC ACC DCC WDC SDC WSDC TDC NDDC MAFF	NRA 3700 Others 11,400 MAFF 16,000		●					



## 15. Known Flooding Problems

The NRA can build new flood defences if flooding is a serious problem in a particular area. Nowadays we usually only build new defences to protect built-up areas from flooding. All schemes must be technically, economically and environmentally sound. We keep a list of schemes called a Programme of Capital works which helps us to plan for the future.

Different types of land and property need different levels of protection.

There are seven known flooding problems in the catchment area. Eight areas have major flood defence works in place or under construction, whilst five further areas have flood defence works in the future Programme of Capital Works (see Figure 1).

Increases in sea level associated with climate change are taken into consideration. We aim to develop effective flood defence schemes that have a reduced impact on the aquatic environment and allow fisheries, conservation and recreation issues to be taken into consideration. This is achieved through the agreed Environmental Assessment procedures.

No	Issues	Actions	Responsibility		Cost to NRA £	Financial					Future		
			Lead	Other		94	95	96	97	98		99	
15.	Known Flooding Problems	Muddlebridge Scheme:	NRA	NRA MAFF DCC NDDC	NRA 200,000 (less MAFF grant aid) DCC 12,000 NDDC 12,000	•	•						
		<ul style="list-style-type: none"> <li>Planning application for preferred option at Muddlebridge submitted to NDDC</li> </ul>											
		<ul style="list-style-type: none"> <li>Apply to MAFF following planning approval</li> </ul>	NRA										
		<ul style="list-style-type: none"> <li>Complete Braunton Tidal Defence Scheme</li> </ul>	NRA	NRA MAFF	Total 1.98 million NRA 875,000	•	•						
		Appledore Scheme:	NRA	MAFF DCC	NRA 2.1 million	•		•					
		<ul style="list-style-type: none"> <li>Submit planning application for preferred option for Appledore Scheme</li> </ul>											
		<ul style="list-style-type: none"> <li>Complete other phases of Bideford Scheme                             <ul style="list-style-type: none"> <li>Quay (4C)</li> <li>Downstream of corporate (4D)</li> <li>East-the-Water (3)</li> <li>Urban (2)</li> </ul> </li> </ul>			Grant Eligible Costs 2.4m 120,000			•					
		<ul style="list-style-type: none"> <li>650,000</li> <li>250,000</li> </ul>				•		•					
Kenwith Valley:													
<ul style="list-style-type: none"> <li>Submit planning application to TDC</li> </ul>	NRA				•								
<ul style="list-style-type: none"> <li>Complete Kenwith Valley improvements</li> </ul>	NRA	MAFF	50,000	•									
<ul style="list-style-type: none"> <li>Obtain MAFF approval for Kenwith Valley Enhancement following planning approval</li> </ul>	NRA	MAFF	900,000			•							

## Future Review and Monitoring Programmes

The NRA is responsible, with other identified organisations and individuals, for implementing this Action Plan. The actions contained within the activity tables are clear, specific and time bounded as far as possible, allowing ourselves, as well as external organisations and individuals, to monitor progress. This process will enable the particular issues identified in this Action Plan to be resolved and move us closer to our

vision for the Tav/Torrige Estuary. This progress will be reviewed annually in a short report to Catchment Steering Groups for the Tav and the Torrige. These groups will be formed by the NRA from those interested individuals and groups who have responded during the consultation period.

These reviews will examine the need to update the Consultation Report in the light of changes in the area. The period between major revisions will normally be five years.

## Appendix 1: Taw/Torridge Estuary Catchment Management Plan Consultation Report

### Responses received through Consultation

#### National Organisations

Salmon and Trout Association  
Sports Council  
Council for the Protection of Rural England  
Ministry of Agriculture, Fisheries and Food  
English Nature  
Royal Society for the Protection of Birds  
Royal Commission on Environmental Pollution

#### Regional and Local Organisations

River Taw Fisheries Association  
Meldon Quarry  
Taw/Torridge Estuary Forum  
Countryside Matters  
South-West Federation of Sea Anglers  
South West Water Services Limited  
South West Rivers Association  
Devon Wildlife Trust  
River Torridge Riparian Owner's Fishermen's Association

#### Parish Councils/District Councils

Mid Devon District Council  
Torridge District Council  
Barnstaple Town Council  
Northam Town Council  
Winkleigh Parish Council

Two responses were also received from members of the public.

## Appendix 2: AMP2 Explanatory Text

Improvements to South West Water Services Ltd's (SWWSL) discharges over the next ten to fifteen years are subject to available funding approved by OFWAT, the water industry's economic regulator. Strategic Business Plans for these schemes were developed based on guidelines agreed between the Water Services Companies, NRA, Department of the Environment (DoE) and OFWAT and submitted to OFWAT early in 1994.

In order of priority, schemes included are:

- i) schemes required to meet and maintain current EC and domestic statutory obligations
- ii) schemes required to meet and maintain new EC and domestic statutory obligations
- iii) schemes which have been separately justified, required to maintain river quality relative to the 1990 survey or to achieve river or marine improvements.

OFWAT declared the associated customer charging base in July 1994. However, no commitment to the delivery of the environmental programme can be given by SWWSL until their request for assessment by the Monopolies and Mergers Commission (MMC) is completed. It should be emphasized, therefore, that the improvements identified for the Taw/Torridge Estuary Catchment under AMP2 are provisional until a commitment is established.

The timing of any improvement works will depend on a priority rating system agreed between SWWSL and the NRA. Details of individual works will not be known until after the completion of the MMC assessment.



## Overview of the Catchment

### Landscape and Natural Environment

The Taw/Torridge Estuary is situated along the Bristol Channel on the north coast of Devon and receives water draining from 1930 km<sup>2</sup> of predominantly rural land in north, mid and west Devon and west Somerset.

The Estuary Catchment covers an area of 142 km<sup>2</sup> and includes the tidal sections of the Rivers Taw, Torridge, Caen, Barnstaple Yeo and Bideford Yeo. There are 27.5 km of coastline within the catchment between Rock Nose and Morte Point.

The River Taw flows into the estuary from the east in a narrow channel until reaching Barnstaple, where it widens into the broad middle and lower reaches. Above Barnstaple the estuary has a higher proportion of freshwater.

At low water narrow channels bordered by inter-tidal mud and sandbanks are exposed. The River Caen and Barnstaple Yeo and other principal tributaries join from the northern banks below Barnstaple.

The River Torridge flows into the estuary from the south. The upper estuary reaches are narrow, meandering and muddy. The water as in the upper Taw Estuary has a higher proportion of freshwater. At low tide large areas of mudbanks, salt marsh and sandbanks are exposed. The river widens just south of Bideford before narrowing again at its confluence with the River Taw from the east.

Both then form the broader joint estuary which flows north-west through the Braunton and Northam Burrows dune systems and Westward Ho! shingle spit towards the Atlantic.

The coastal section of the catchment is varied in character from the low-lying dune and shingle system along the estuary mouth to the dramatic headlands, steep cliffs and flat sandy beaches of the north.

The inland area is low-lying and fringed with typically north Devonian rounded hills and wooded valleys. Barnstaple, Bideford and Braunton are the main towns in the catchment. The remainder of the catchment is rural.

The Taw/Torridge Estuary and much of the associated land is of special ecological interest. The major part of the area is a designated Special Site of Scientific Interest (SSSI) and lies within a County Nature Conservation Zone. Wading birds, wildfowl and a range of maritime and estuarine habitats are valued. Many landscape and archaeological features are also considered worthy of protection.

### Commercial Use of the Estuary and Pressures on the Water Environment

Tourism is an important industry and the area offers a range of attractions for visitors including public footpaths, bridleways and cycle routes. Traditional beach based activities, angling, bird-watching, boating and powered craft are particularly popular.

The area has six designated EC Bathing Waters (76/160/EEC) (Ref. 1). Other sites are also popular with bathers and surfers. There are seven main mooring sites and twenty smaller public and private slipways. The importance of the estuary with respect to fisheries has long been recognized.

Migratory fish and their protection in this catchment for the benefit of the freshwater Taw and Torridge ecosystems is important. Traditionally fisheries have contributed to the economic well-being of the area.

Historically the area has been important to shipping. Its influence has declined but remains significant. The catchment is also used by the Ministry of Defence (MOD) and Royal National Lifeboat Institution (RNLI). Effluent and solid waste disposal are also features of the catchment. Occasional pollution incidents also occur. There are eighteen waste disposal sites in the catchment, five of which are still operational. The potential for these waste disposal uses to impact on other uses of the catchment is apparent.

Although the area to the south of the Taw Estuary is largely exempt from groundwater licensing, there are thirty-six groundwater licences in the rest of the catchment. There are also thirty-one other licensed abstractions. Little increased exploitation is expected but existing supplies need to be protected.

Sand and gravel extraction and flood defence have the potential to affect the physical characteristics of the catchment and associated ecosystems. There are four licensed practicable sand and gravel extraction areas but only one is exploited at present. Flood defence and sea defences represent a particular challenge with a changing emphasis on methods involving 'soft engineering' and 'managed retreat' which may provide opportunities to enhance as well as defend.

## Activity Tables

The following tables outline the actions which are needed to address issues we identified in the Consultation Report together with additional issues raised during the consultation process.

As considerable time has passed since the consultation period, some of the issues previously identified have been resolved and others newly identified. Therefore, the issues contained in these tables are not an exact replica of those contained in the Consultation Report.

Our everyday work also commits substantial resources to managing the water environment. The scope of this work was explained in the Consultation Report.

The costs identified in the following tables represent the planned timetable of expenditure over the next five years. However, NRA policy and priorities may change in this time which may affect how much we are able to spend on these issues.

Figures 1 and 2 in this plan indicate the location only of those features and resources of the estuary which are discussed as issues.

### 1. Poor Effluent Quality

The Taw/Torridge Estuary is widely used for the disposal of effluent. The NRA implements consent controls under the powers given by the Water Resources Act 1991 (Ref. 2). The NRA is reviewing many of the discharge consents in three phases. The unsatisfactory impact of many of the existing discharges and the projected future increases in sewage flows makes reassessment of consents and improved disposal facilities an important issue.

A major improvement scheme for the Taw/Torridge Estuary is planned under South West Water Services Limited's (SWWSL) investment programme. The scheme consists of two components, North and South, which will remove all the existing major unsatisfactory crude sewage discharges to the estuary. This scheme will bring about significant water quality improvements, particularly reduced levels of bacteria, ammonia and BOD. These improvements will allow the requirements of both the EC Bathing Waters Directive (76/160/EEC) (Ref. 1) and the EC Urban Waste Water Treatment Directive (91/271/EEC) (Ref. 3) as incorporated into UK legislation to be met.

#### a) North (Ashford) Scheme

Sewage from Fremington, Braunton and Barnstaple will be combined and treated at an improved Sewage Treatment Works (STW) at Ashford and discharged into the Taw Estuary. The Department of the Environment (DoE) have not yet decided whether an application for a revision to the existing consent for Ashford STW should be 'called in' because of objections made by a third party. No further progress with consenting this part of the scheme can be made until DoE make their decision.

#### b) South Scheme

Sewage from Yelland, Westleigh, Bideford, Appledore, Northam and Westward Ho! will be combined, biologically treated and discharged into Bideford Bay through a 500m long outfall located off Cornborough Range. In the future disinfection facilities may be installed if post-scheme monitoring demonstrates that it is required.

Improvements have recently been carried out by SWWSL to reduce the aesthetic impact of a storm water discharge to Croyde Beach. The frequency of operation has been reduced through the installation of storage tanks and fine screening has been installed to remove gross solids. In addition the storm discharge outfall point has been relocated and the local sewerage infrastructure has been improved.

Appropriate treatment provisions for Croyde are planned within SWWSL's ten year investment plan. This provision will ensure compliance with the requirements of the EC Urban Waste Water Treatment Directive (91/271/EEC) (Ref. 3).

Further improvements to private sewage discharges have also been achieved as the previous discharge from Fremington Training Camp now goes directly to the foul sewer and improved treatment facilities are now in place at RAF Chivenor.

The NRA seeks to control and improve the discharge of effluent by issuing, monitoring and enforcing consents in order to protect the water environment. By doing so we will ensure the appropriate EC Directive standards are achieved. In the case of the Taw/Torridge Estuary, we aim to ensure that the quality and quantity of water entering the estuary from the freshwater catchments Taw and Torridge are managed to provide further adequate contribution to dilution of discharges into the estuary.



## Glossary

**Biodiversity** - The total range of the variety of life on earth or any given part of it.

**Biosphere Reserve** - Statutory site designated by UNESCO/World Heritage Committee and recognized by the international community as possessing international value for the purpose of conservation and exchange of scientific information.

**Campylobacter** - These are bacteria of the genus *Campylobacter* with a characteristic 'corkscrew' shape. They can be divided into two groups determined by the temperature they can grow at. They are normally found as parasites of man, animals and birds, causing campylobacter enteritis in man.

**County Nature Conservation Zone** - A broad non-statutory designation identified within the County Council's Landscape Policy Area Local Plan, taking the form of twelve relatively extensive areas of countryside around some of the key conservation sites in the county, where priority will be given to the protection and enhancement of the natural features.

**Eutrophication** - The enrichment of a water body with plant nutrients which alleviates a shortage of a limiting substrate and thereby causes the excessive growth of algae which results in a general decline in water quality.

**Faecal coliform** - The name given to a group of bacteria which, if present in a water sample, indicate that it has been contaminated by faeces and that there is, therefore, a risk that it may also contain faecal pathogens like cholera and typhoid fever.

**Macroinvertebrates** - A large invertebrate, e.g. jellyfish, snail, fly.

**Macrophytes** - These are plants that are large enough to be easily seen, readily identifiable in the field without microscopes and are found submerged, emergent, floating or at the water's edge. They include large algae, lichens, bryophytes (liverworts and mosses), ferns, horsetails and all higher plants which are aquatic or associated with the water's edge.

**Net Limitation Order** - An order made by the NRA and confirmed by MAFF which defines the number of licensed nets which may operate in a fishery. This order allows the fishery to be regulated by restricting fishing effort.

**Polluted Water** - Under the EC Nitrates Directive (91/676/EEC) (Ref. 11) these are waters which are eutrophic in terms of nitrogen or at risk of shortly becoming so unless protective action is taken. They must be identified as polluted waters (eutrophic) and the areas of land draining to these waters, which contribute to their nitrate pollution, must be designated as vulnerable zones and restrictions on agricultural activities imposed.

**Salmonella** - These are anaerobic rod shaped bacteria of the *Enterobacteriaceae* family. All members of the genus *Salmonella* are intestinal animal pathogens. *Salmonella typhi* and to a lesser extent *Salmonella paratyphi* are primarily human pathogens. They are well adapted to water as a mode of transmission and cause typhoid and paratyphoid respectively.

**Salmonid** - Game fish of the salmon family, e.g. salmon, trout and sea trout.

**Sensitive Area** - Under the EC UWWT Directive (Ref. 3) these are areas which receive discharges serving population equivalents greater than 10,000 and also where surface waters are or may become eutrophic in the near future.

**Spit** - Elongated accumulation of sand or gravel projecting from the shore into a water body.

**Task Force** - an intensive investigation of possible sources of pollution following non-compliance with water quality objectives in the catchment.

## Units

km	kilometre
km <sup>2</sup>	kilometre squared
cm	centimetre
mm	millimetre

## Abbreviations

ACC	Avon County Council
AMP2	Asset Management Plan 2
BOD	Biological Oxygen Demand
CoCo	Countryside Commission
DCC	Devon County Council
DoE	Department of the Environment
DoH	Department of Health
DSFC	Devon Sea Fisheries Committee
DWT	Devon Wildlife Trust
EC	European Community
EEC	European Economic Community
EHOs	Environmental Health Officers
EN	English Nature
IDB	Internal Drainage Board
LAs	Local Authorities
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
MMC	Monopolies and Mergers Committee
MOD	Ministry of Defence
NDDC	North Devon District Council
NGOs	Non-Government Organisations
NRA	National Rivers Authority
OFWAT	Office of Water Services
RAF	Royal Air Force
RCS	River Corridor Survey
R&D	Research and Development
RNLI	Royal National Lifeboat Institution
SCC	Somerset County Council
SDC	Sedgemoor District Council
SNIFFER	Scottish and Northern Ireland Forum for Environmental Research
SSSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
SWWSL	South West Water Services Limited
TDC	Torridge District Council
TTEF	Taw and Torridge Estuary Forum
UNESCO	United Nations Education Science and Culture Organisation
UWWTD	Urban Waste Water Treatment Directive
WDC	Woodspring District Council
WSDC	West Somerset District Council
WQ	Water Quality



# Contents

SECTION	Page
Vision for the Catchment	2
Introduction	2
Review of the Consultation Process	2
Overview of the Catchment	3
Activity Tables	4
<b>Issues:</b>	
1. Poor Effluent Quality	4
2. Further Conservation of Important Species and Habitats	7
3. Absence of Comprehensive Ecological Data	8
4. Watersport Pressures on the Estuary	8
5. Restricted Shellfish Farming	9
6. Impact of Dredging Operations and Sand and Gravel Extraction	9
7. Reduce Pollution Incidents	10
8. Implement Water Resources Strategy to Meet Future Needs	10
9. Minimize Impact of Abstractions	11
10. Reported Falling Groundwater Levels in Braunton and Northam Burrows	11
11. Impact of Nutrient Enrichment	12
12. Decline of Salmon, Sea Trout and Trout Stocks	13
13. Pressure on Bass Fisheries	13
14. Review Flood Defence Operations	14
15. Known Flooding Problems	15
Future Review and Monitoring Programmes	15
<b>Appendices</b>	
1 Responses Received Through Consultation	16
2. AMP2 Explanatory Text	16
Glossary	17
Units	17
Abbreviations	18
References	19



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## Vision for the Catchment

The Taw/Torridge Estuary is an important area for a number of different interests including recreation, conservation, commercial and industrial activities. The estuary is home to a range of wildlife, many of which are either rare or becoming increasingly scarce. It is also a vital location in the migratory pathways of many birds and fish, providing the necessary habitat and food supplies which are limited elsewhere.

This scenic estuary provides an opportunity for numerous recreation activities for the many people who either visit or live in the area. With so many uses made of the estuary there are bound to be conflicts of interest. The NRA aims to manage the water environment of the estuary in a sustainable manner, that is reconciling economic development with protection of the environment. Sustainability meets the needs of the present without compromising the ability of future generations to enjoy the valued natural and cultural features and resources of the estuary.

To ensure sustainability of the resources of the estuary, judgements must be made about the impact of developments on these resources. Sometimes environmental costs have to be accepted as part of economic development but on other occasions a feature or an ecosystem or some other aspect of the environment must be regarded as so important that it should be protected from exploitation.

In an area of such high amenity and ecological value as the Taw/Torridge Estuary, the NRA's vision of the future is towards a catchment where:

- the biodiversity of the waters and associated lands of the estuary is maintained and extended
- improvements continue to be made to existing discharges, meeting the most stringent appropriate standards
- an agricultural and forestry system develops which minimizes the risk of diffuse pollution and improves the physical habitat of the river system and wetlands for wildlife
- everyone's enjoyment and appreciation of the river system continues to grow
- there is minimal risk to people and property from flooding
- there are sustainable salmonid, sea and shell fisheries within the estuary.

## Introduction

Following production of the Taw/Torridge Estuary Catchment Management Plan Consultation Report and the consultation period, we are now presenting the Taw/Torridge Estuary Catchment Management Plan Action Plan. It includes activity tables to address the issues and primarily covers the five year period from 1994 to April 2000. The Action Plan will form the basis for improvements to the water environment by outlining the areas of work and investment proposed by the NRA and others. Achievement of the Action Plan will be monitored and reported annually.

The Catchment Management Planning process within the NRA includes the production of two documents - a Consultation Report and an Action Plan, together with a period of extensive consultation. The Consultation Report describes our vision for each catchment, identifies problems and acts as a focus for consultation between the NRA and other interested parties in the catchment. The Action Plan identifies actions, following consultation, to resolve the problems and issues. The Plan provides background data for NRA responses to development plans and highlights where we are concerned about development.

## Review of the Consultation Process

The Taw/Torridge Estuary Catchment Management Plan Consultation Report was published in July 1993.

The Consultation Report was distributed to industry, local authorities, environmental groups, farming interests, sport and recreation groups and the public.

The consultation aimed to obtain agreement on the catchment uses; consensus on the environmental objectives and standards required and detailed comment on the issues and options in the report. A two month consultation period followed.

One hundred and sixteen Consultation Reports and a large number of leaflets were sent out during the consultation period. In total, twenty-three consultation responses were received (see Appendix 1).

All the responses received have been considered and have provided an invaluable contribution to the formulation of the Action Plan.



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