

**SOUTH WESTERN REGION**

**RIVER TORRIDGE CATCHMENT MANAGEMENT PLAN- FINAL REPORT**

**FIRST ANNUAL REVIEW (1995)**

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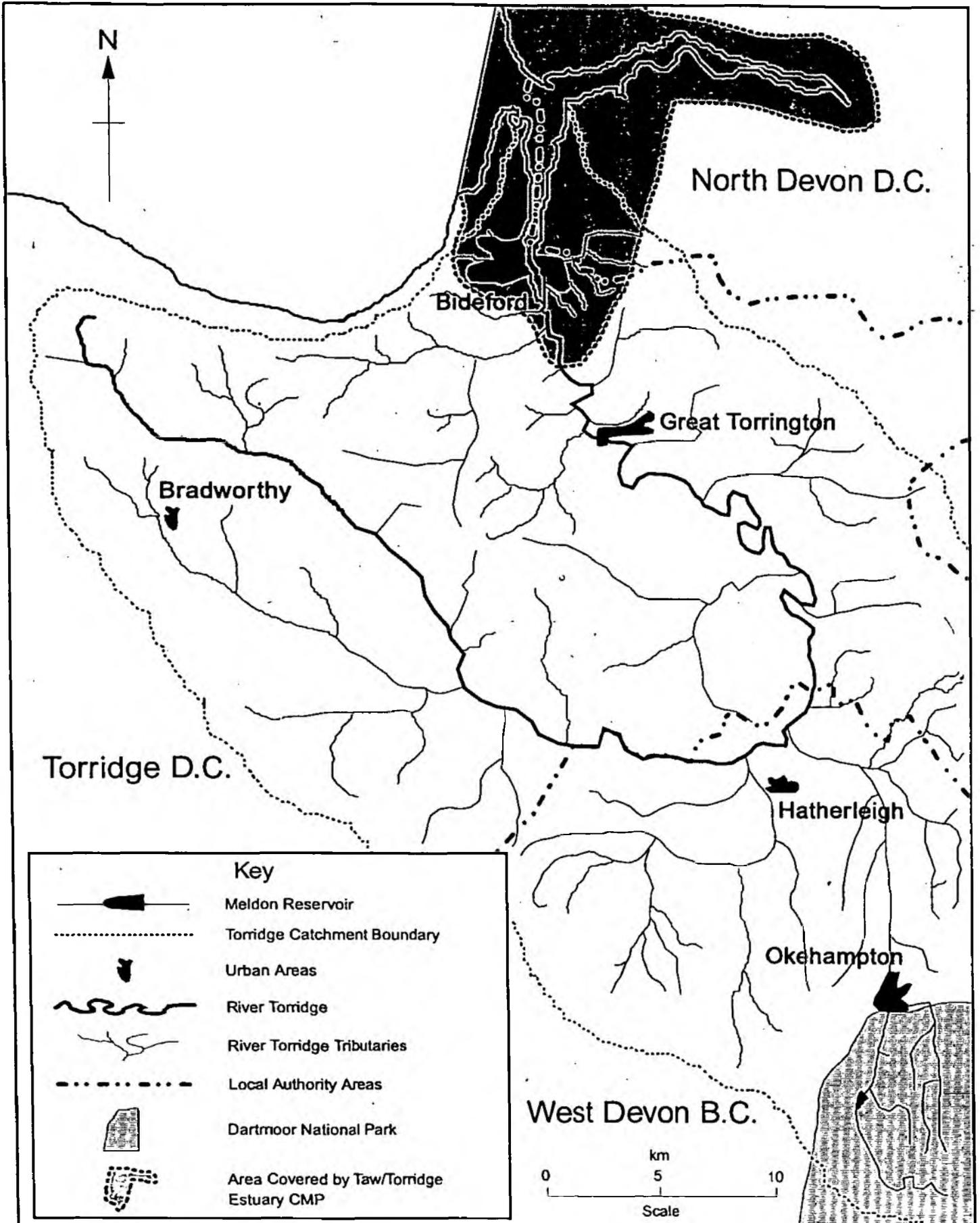
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Figure 1

# The River Torridge Catchment



## **INTRODUCTION**

The first Annual Review of the Final Report summarizes the progress made by the National Rivers Authority (NRA) and others, from September 1994 to September 1995. This is the first year of the five year action plan set out in the Final Report.

It is recommended that this report is read in conjunction with both the River Torridge Catchment Management Plan Final Report and the Consultation Report.

The progress outlined in this report will be discussed at a meeting of the Torridge Catchment Steering Group, which includes representatives of external interests, to be held at the end of September.

### **The NRA and the Environment Agency**

The NRA will form the major part of a new organization which will have responsibilities for the environmental protection of water, land and air. The new Environment Agency starts its work of managing the environment in England and Wales on April 1 1996.

## **VISION FOR THE CATCHMENT**

We endeavour to balance the legitimate uses of the catchment in the context of our fundamental duty to protect and enhance the natural environment.

Key objectives are to:

- increase understanding of the effects of rural land use on water quality, fisheries and the river ecosystem enabling the development and promotion of practical solutions to problems identified
- ensure that the use of the natural capacity of the river to dispose of treated effluents does not result in a loss of the river's ecological and fishery potential
- reverse the decline of salmon, sea trout and trout stocks
- develop and implement a water resources strategy that ensures adequate supplies and sufficient flows for the environment
- develop and implement a flood defence (including land drainage) strategy that meets agreed land uses in an environmentally acceptable way.

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## **SUMMARY OF PROGRESS**

Major improvements have been made to the effluent treatment facilities at some of the larger industrial sites which discharge to the River Torridge Catchment.

In addition, although there was no formal farm visit campaign carried out in the catchment this year visits were made to check that problems previously detected have been rectified.

The expenditure made by industry and farmers is now resulting in real improvements to the water environment. River water quality, as measured using the General Quality Assessment, has improved overall in the catchment by 7.5%. The number of reported pollution incidents nearly doubled last year (81 in 1994), although only one of these was classified as a major incident.

Work, such as trash dam clearance and cleaning spawning gravels, has been carried out to extend the areas available for salmonid spawning.

As part of the conditions negotiated with the determination of the Exe/Taw transfer licence, two abstraction licences in the River Torridge Catchment at Jennett's Reservoir and in the River Yeo have been revoked.

This year has also seen an important review of fisheries data. This review will help guide us to safeguard the spring stocks of salmon and also sea trout and salmon populations in general in the combined catchments of the Rivers Taw and Torridge.

This work involved extensive consultation with those involved with the salmonid fishery. We are most grateful to all those who gave their time to participate and comment. Our current proposals are available in a separate report and will be advertized soon for public comment.

## **AMP2 SCHEMES**

No progress was made with implementing any of the Sewage Treatment Works (STW) improvement - AMP2 Schemes until the Monopolies and Mergers Commission's review of South West Water Services Limited's (SWWSL) AMP2 programmes was completed. We will now agree the timing of the improvement schemes with SWWSL, which will determine the timing of the consent reviews and capital works.

## **FUTURE REVIEWS**

The Final Report for the River Torridge Catchment will be monitored annually when further annual reviews will be produced.

We will review progress again in September 1996 when we will publish our second Annual Review of the River Torridge Catchment Management Plan- Final Report.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE I: IMPROVED FARM WASTE MANAGEMENT PRACTICES</b>					
<b>Review Farm Visit Programme</b>					
● Identify target areas.	NRA		£200 p.a.	*	No new areas were identified in the catchment.
● Undertake farm visit programme.	NRA		£6,000 p.a.	*	} Follow-up visits to audit } improvements and visits } to known high-risk } sites.
● Enforce farm waste legislation and secure improvements.	NRA	Landowners	£6,000 p.a. Cost to Landowners	*	
● Recommend suitable procedure to report on the work and environmental benefit achieved.	NRA		£1,000	95†	National farm visit manual for NRA staff completed and circulated to all regions. Field staff have been issued with the manual. Manual contains standard reporting procedures.
- Implement this procedure.	NRA		Not Known		
● Continue to liaise with the planning authorities to ensure that they are aware of NRA concerns and priorities with respect to all agricultural developments.	NRA	LPA		*	Ongoing.
● Contribute to North Tamar Environment Energy Project at Holsworthy to convert farm waste to electricity.	NRA	North Tamar Business Network		*	We have contributed to this pilot project.

† Indicates the Financial Year i.e. 1995/96 in which the action was planned to start.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 2: IMPACT OF CONIFER PLANTATIONS</b>					
<ul style="list-style-type: none"> <li>Review internal NRA procedures for liaising with Forestry Authority/Local Authorities and other landowners for planting and felling schemes with a view to standardize procedures and implement national guidance.</li> </ul>	NRA	FA LPA	£1,000	*	Procedures reviewed and liaison improving.
<ul style="list-style-type: none"> <li>National R&amp;D project on 'The Impacts of Fine Particulate Outputs Associated with Timber Harvesting' (Project Number 465).                             <ul style="list-style-type: none"> <li>- Impact assessment to clear felling on Whiteleigh Water.</li> </ul> </li> </ul>	NRA/ IoH	FE Landowner	Total £90,000	*	Ongoing.
<ul style="list-style-type: none"> <li>Review results of above R&amp;D work and recommend best land use practice.</li> </ul>	NRA		£1,000	97	Initial meeting held with Institute of Hydrology and Forestry Enterprise. No further work planned as area not to be felled whilst research project being carried out. No other areas suitable in the catchment.
<ul style="list-style-type: none"> <li>Review results of above R&amp;D work and recommend best land use practice.</li> </ul>	NRA		Unknown	97	
<ul style="list-style-type: none"> <li>Set up project to identify whether forestry practices on Dartmoor cause acidification of watercourses.</li> </ul>	NRA	FE FA DNP EN Landowner	Unknown	95	

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 3: NUTRIENT ENRICHMENT</b>					
<p>The River Torridge between Great Torrington STW and the Tidal Limit has been identified for specific monitoring.</p> <ul style="list-style-type: none"> <li>• Chemical and biological monitoring data will be collected to investigate the potential nomination of the stretch as a "Sensitive Area" to be designated under the EC Urban Waste Water Treatment Directive (UWWTD) (91/271/EC). Successful designation will provide the legal requirement to install nutrient removal facilities at Great Torrington STW.</li> <li>• Continue to operate the continuous monitors at Coxhillhayes and Beam to support the above investigation and monitor any improvement if nutrient control is brought in.</li> </ul>	NRA	DoE	£21,000 Potential cost to SWWSL	*	Chemical samples collected monthly from Beam footbridge, Rothern Bridge, Great Torrington abstraction point and Great Torrington STW. Biological samples were taken at Rothern and Beam footbridge. Macrophyte samples were taken at Great Torrington STW. Data will be reviewed in 1997.
<ul style="list-style-type: none"> <li>• Set up project to identify nutrient pathways from agriculture and to identify specific remedial measures such as the use of buffer zones.</li> </ul>	NRA		Unknown	*	Initial meetings held with Soil Survey and Land Research Centre and MAFF. Project possibilities being investigated.
<ul style="list-style-type: none"> <li>• Attendance at national workshop to provide guidance on buffer zone management application to River Torridge.</li> </ul>	NRA		£400	*	Workshop attended (see below).

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 3: NUTRIENT ENRICHMENT (Continued)</b>					
<ul style="list-style-type: none"> <li>National R&amp;D project to develop land management techniques including the use of buffer zones. Once completed the findings from this project will be reviewed to assess their relevance for the River Torridge Catchment.</li> </ul>	NRA		£200,000	*	Phase 1 completed. Phase 2 to begin 95/96 to construct and test performance of buffer zones. Digest of Phase 1 in Appendix 1. Currently assessing suitable sites. Any suitable river stretches in the Torridge Catchment - suggestions welcome.
<ul style="list-style-type: none"> <li>Produce a national NRA position statement with regard to buffer zones and permanent set-aside against which the concerns in the Torridge can be considered.</li> </ul>	NRA		£4,000	95	NRA internal paper prepared for the pollution prevention steering group. Further work ongoing.
<ul style="list-style-type: none"> <li>Develop a national protocol to identify suitable catchments where buffer zones and set-aside can best be applied.</li> </ul>	NRA		£4,000	95	Consultation with MAFF on possible new set-aside rule to transfer set-aside obligations - pilot catchments probably in Anglian Region.
<ul style="list-style-type: none"> <li>Implement for the Torridge where appropriate.</li> </ul>	NRA		Unknown and potential cost to riparian owners.	97	

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 4: IMPROVED EFFLUENT CONTROL</b>					
<ul style="list-style-type: none"> <li>Pursue the early determination of Meldon Quarry's effluent discharge consent to the River Okement.</li> </ul>	NRA	DoE Meldon Quarry	£500	*	Reduction in consented volume agreed with Meldon Quarry. NRA need now to review overall consent conditions at site.
<ul style="list-style-type: none"> <li>Pursue improvements to the effluent disposal system of Peninsular Proteins Ltd and St Merryn Meat Ltd.</li> </ul>	NRA	Peninsular Proteins Ltd & St Merryn Meat Ltd WRA	£2,000 + Cost to Discharger	*	Improvements will be implemented soon. Company pursuing programme of waste reduction and of effluent quality improvement. WRA to license waste disposal activities.
<ul style="list-style-type: none"> <li>Monitor West Devon Meats Ltd undertaking not to discharge and measure the environmental improvement.</li> </ul>	NRA	West Devon Meat Ltd	£2,000	*	No waste from West Devon Meats was sprayed to land after August 1994 - as agreed. Effluent now tankered off site. Visual improvement, although recent biological and chemical monitoring have not shown any marked improvement in river water quality.
<ul style="list-style-type: none"> <li>Review the performance of North Devon Ball Clay consented discharges against river needs and consent.</li> </ul>	NRA	ECC WBB		95	A major improvement has been achieved. Early results from the 1995 biological survey indicate an improvement shown by the increased diversity of aquatic macroinvertebrate families in the River Mere.
<ul style="list-style-type: none"> <li>Deep Moor Landfill - ensure that leachate disposal is diverted to sewer and STW.</li> <li>- Undertake an in-depth survey of Deep Moor Landfill and nearby watercourses to ensure that all polluted drainage is intercepted and directed to the new foul sewer connection.</li> </ul>	DWRA  NRA	NRA DWM SWSL  DWM	£1,000 + Cost to Discharger & DWRA £3,000	*	Completed.  No significant problems identified during a dry weather survey. Awaiting wet weather to finish the investigation.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 4: IMPROVED EFFLUENT CONTROL (Continued)</b>					
<ul style="list-style-type: none"> <li>Carry out a risk assessment survey at the major industrial sites, promote 'good housekeeping' arrangements and enforce pollution control legislation.</li> </ul>	NRA	Owners	Unknown	*	No sites targeted this year. Priorities elsewhere.
Review SWWSL consents to discharge specifically:  <b>Folly Gate</b> <ul style="list-style-type: none"> <li>Issue a numeric consent based on current performance to meet the requirements of the EC Urban Waste Water Treatment Directive (appropriate treatment).</li> </ul>	NRA		£1,415 per Consent	*	No progress. (AMP2 Scheme)
<b>Petrockstowe STW</b> <ul style="list-style-type: none"> <li>Issue a numeric consent to require more stringent secondary treatment to meet the requirements of the EC Urban Waste Water Treatment Directive (appropriate treatment).</li> <li>Carry out improvement works at STW to comply with new consent standards.</li> </ul>	NRA  SWWSL	  NRA	£1,415 per Consent  Cost to SWWSL	*  *	No progress. (AMP2)  No progress. (AMP2)
<b>Okehampton STW</b> <ul style="list-style-type: none"> <li>Negotiate with SWWSL for investment under AMP2 to rectify the problem from the premature operation of a CSO at works inlet.</li> </ul>	NRA/ SWWSL		Unknown Costs to NRA and SWWSL	*	Possibility of low cost improvements outside of AMP2 being investigated. Continuous monitoring has been installed to determine any current impact.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 4: IMPROVED EFFLUENT CONTROL (Continued)</b>					
<p>The four STWs at Roborough, Little Torrington, Milton Damerel and Broadwoodkelly have an impact on aesthetic quality of the receiving watercourse downstream of STW.</p> <ul style="list-style-type: none"> <li>Issue a descriptive consent requiring preliminary aesthetic improvements to works under EC UWWTD (appropriate treatment).</li> </ul>	NRA		£5,660	By 2005	Biological treatment facilities corrected aesthetic problem at Broadwoodkelly. Others - no progress. (AMP2)
<ul style="list-style-type: none"> <li>Carry out improvement works at STW to bring about compliance with new consents to ameliorate the impact on aesthetic quality downstream.</li> </ul>	SWWSL		Cost to SWWSL	By 2005	No progress (AMP2).
<ul style="list-style-type: none"> <li>Complete works to Great Torrington sewerage system currently being undertaken.</li> </ul>	SWWSL		Cost to SWWSL	*	Nearly completed. This will rectify the previous problems with CSO discharges.
<p>The flow to Bradworthy STW exceeds the conditions specified in the current consent.</p> <ul style="list-style-type: none"> <li>Review the current consent to reflect increased flow to the works to maintain discharge load.</li> </ul>	NRA		£1,415	By 2005	No progress. (AMP2)
<ul style="list-style-type: none"> <li>Carry out improvement works at STW to comply with new consent standards.</li> </ul>	SWWSL		Cost to SWWSL		No progress. (AMP2)
<ul style="list-style-type: none"> <li>Continue to liaise with the planning authorities to ensure that they are aware of NRA concerns and priorities with respect to sewage and trade waste disposal.</li> </ul>	NRA	LPA		*	Ongoing.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 5: ACIDIC AND METALLIFEROUS RUNOFF</b>					
<ul style="list-style-type: none"> <li>Develop a contingency plan to reduce any environmental impact at the 'break' of droughts, involving full consultation with interested parties, at:                             <ul style="list-style-type: none"> <li>- Meldon Quarry</li> <li>- Brightley Stream</li> <li>- Fowley Stream</li> </ul> </li> </ul>	NRA	Meldon Quarry Landowners DNP MAFF SWWSL	<p>£500</p> <p>£400</p> <p>£400</p>	<p>*</p> <p>*</p> <p>*</p>	Contingency plans have been produced. Available on request. This will involve continuous monitoring.
<ul style="list-style-type: none"> <li>Implement (in part or full) contingency plans at appropriate times (weather dependant).</li> </ul>	NRA	As above.	Up to £40,000 per incident		
<ul style="list-style-type: none"> <li>Review contingency plans after implementation.</li> </ul>	NRA		£400		

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 6: CONTAMINATION OF GROUNDWATER</b>					
<ul style="list-style-type: none"> <li>Seek adoption of the NRA policy and practice for the protection of groundwater.</li> </ul>	NRA	Planning Authorities WRA Developers Landowners Farmers SWWSL	Ongoing.	*	Ongoing
<ul style="list-style-type: none"> <li>Provide guidance to Waste Regulation and planning authorities as statutory consultees on waste management proposals.</li> </ul>	NRA	Planning Authorities WRA Waste Operators	In part ongoing recoverable from waste management licence application fees.	*	Ongoing
<ul style="list-style-type: none"> <li>Annual review of DWM audit reports to assess any impact of waste disposal sites on the water environment.</li> </ul>	NRA	DWM WRA		*	Not completed due to the delay in vesting DWM. No review document forwarded from DWM as yet.
<ul style="list-style-type: none"> <li>Provide guidance to planning authorities and developers on redevelopment of potentially contaminated land.</li> </ul>	NRA	Planning Authorities Developer Landowner	Ongoing.	*	Ongoing
<ul style="list-style-type: none"> <li>Consent new discharges to underground strata under the Water Resources Act 1991.</li> </ul>	NRA	Developer Landowner	Recover from consent application fees.	*	Ongoing

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 7: DEVELOP WATER RESOURCES STRATEGY TO MEET FUTURE NEEDS</b>					
<p>a) Produce a Regional Water Resources Strategy</p> <ul style="list-style-type: none"> <li>Regional Water Resources Strategy will be published by the end of 1994.</li> </ul>	NRA		Not available.	*	Tomorrow's Water published. Available.
<p>b) Implement Strategy Locally for the Torridge</p> <ul style="list-style-type: none"> <li>The implications of the strategy for the Torridge will be reviewed.</li> <li>The Torridge Final Report will be updated accordingly during the annual reviews.</li> <li>The CAP Steering Group will be briefed annually.</li> </ul>	NRA		Not available.	95	Work on the strategy identified no short/medium term needs in the catchment.
	NRA	£200		95	No further actions identified.
	NRA	£400		95	This action will no longer be necessary as no further actions were identified.
<p>c) Drought Strategy</p> <ul style="list-style-type: none"> <li>The need for any specific drought strategy will be considered following the publication of the Water Resources Strategy.</li> </ul>	NRA		Unknown		Any drought strategy for the River Torridge Catchment will centre on the operation of Meldon Reservoir (c & d actions will be combined).

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 7: DEVELOP WATER RESOURCES STRATEGY TO MEET FUTURE NEEDS (Continued)</b>					
<p>d) <b>Review of the Meldon Operating Agreement (to include specific details for drought management)</b></p> <ul style="list-style-type: none"> <li>The timing of this review will be considered again following the publication of the Water Resources Strategy.</li> </ul>	NRA		Unknown		This will be part of the water resource assessment of the Roadford scheme.
<p>e) <b>Development Control</b></p> <ul style="list-style-type: none"> <li>Continue to liaise with the planning authorities to ensure that they are aware of NRA concerns and priorities concerning water resource status in the River Torridge Catchment.</li> </ul>	NRA			*	Ongoing.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 8: REVERSE THE DECLINE OF SALMON, SEA TROUT AND TROUT STOCKS</b>					
<p><b>Population Controls</b></p> <ul style="list-style-type: none"> <li>● Maintain catch controls (including netting) for the agreed period and then review.</li> </ul>	NRA			*	Catch controls holding and working. Fisheries data review completed Summer 1995.
<ul style="list-style-type: none"> <li>● Continue pilot study to develop broodstock (salmon and trout) and review.</li> </ul>	NRA		£60,000	*	Trout broodstock line being successfully developed.
<ul style="list-style-type: none"> <li>● Plant out juveniles - progeny from the broodstock pilot study.</li> </ul>	NRA		£32,000	*	Ongoing.
<ul style="list-style-type: none"> <li>● Conduct a review of NRA SW policy on spring fish in South West (cropping controls etc).</li> </ul>	NRA			*	Data review completed, wide consultation and preliminary assessment by MAFF. Report available. Proposals will be advertized soon.
<ul style="list-style-type: none"> <li>● Introduce a byelaw to control estuary sea fishing - gather data and review.</li> </ul>	NRA		£16,000 p.a.	*	No progress.
<ul style="list-style-type: none"> <li>● Control fishing methods through routine enforcement.</li> </ul>	NRA		£18,000 p.a. (in river only)	*	Successful achievement of objective.
<p><b>Impacts of Predators (fish eating birds)</b></p> <p>The NRA will not support licensed killing of predators until and unless proof of serious damage has been established and killing proven to be the most effective means for preventing significant loss to fish stocks.</p> <ul style="list-style-type: none"> <li>● The NRA will cooperate with the licensing authority to progress further research into this issue and will continue to work positively with owners and anglers to establish the full facts in each situation.</li> </ul>	MAFF	NRA		*	Ongoing.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 8: REVERSE THE DECLINE OF SALMON, SEA TROUT AND TROUT STOCKS (Continued)</b>					
<b>Siltation and Compaction of Gravels</b> <ul style="list-style-type: none"> <li>Identify appropriate sites on an annual basis that could benefit from gravel rehabilitation after fully considering wider ecological impact.</li> </ul>	NRA		£1,000 p.a.	*	Sites identified.
<ul style="list-style-type: none"> <li>Maintain gravels according to the agreed Devon Area procedure.</li> </ul>	NRA	TROFA	£5,000 p.a.	*	Gravels cleaned in River Waldon, Wooleigh and Beckamoor Brook.
<ul style="list-style-type: none"> <li>Monitor improvements in spawning success through redd counts and juvenile surveys. Review 1998.</li> </ul>	NRA			*	Continuing. Redd counts to cease 1995.
<ul style="list-style-type: none"> <li>Promote riparian fencing and planting schemes to stabilise banks, reduce stock ingress to streams and reduce silt inputs.</li> </ul>	NRA	MAFF NFU Farmers Landowners TEF TROFA	Cost to riparian owners.	*	Progress made in 1995 - some schemes negotiated. Report at meeting.
<ul style="list-style-type: none"> <li>Review existing hydrological data to assess whether the River Torridge has become more 'flashy'.</li> </ul>	NRA		£1,600	95	
<b>Physical Barriers to Fish Migration</b> <ul style="list-style-type: none"> <li>Identify impassable barriers at Meldon Dam, West Cleave, Jacobstowe and Yeo Vale.</li> </ul>	NRA				Completed
<ul style="list-style-type: none"> <li>Maintain present fish passes.</li> </ul>	NRA			*	Ongoing
<ul style="list-style-type: none"> <li>Install fish passes - dependant on capital availability.</li> </ul>	NRA				

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 8: REVERSE THE DECLINE OF SALMON, SEA TROUT AND TROUT STOCKS (Continued)</b>					
<ul style="list-style-type: none"> <li>Remove trash dams and other obstacles after fully considering wider ecological impact and according to the agreed Regional procedure.</li> </ul>	NRA	Riparian Owners	£7,500 p.a.	*	Trash dams removed in River Waldon, Wooleigh and Beckamoor Brook and Langtree Stream.
<b>Development Control</b> <ul style="list-style-type: none"> <li>Continue to liaise with the planning authorities to ensure that they are aware of NRA concerns and priorities concerning fish stocks.</li> </ul>	NRA	LPA		*	Ongoing
<b>9. DETERMINE FISHERY TARGETS</b>					
<ul style="list-style-type: none"> <li>Adopt suggested system of juvenile density targets and assess with three year rolling survey programme.</li> </ul>	NRA		Unknown	95	
<ul style="list-style-type: none"> <li>Consider alternatives and assess as above - notably the proposed national system for fisheries classification.</li> </ul>	NRA		Unknown	*	Alternatives proposed e.g. egg deposition targets, which will supersede juvenile density targets.
<b>10 MONITOR AND ASSESS RECREATION USE</b>					
<ul style="list-style-type: none"> <li>Continue warden surveys of recreational use of the water environment and associated lands.</li> </ul>	NRA		£1,000 p.a.	*	Annual survey completed and highlights areas of major use.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 11: PROMOTE RECREATION INITIATIVES</b>					
<ul style="list-style-type: none"> <li>Clarify the NRA position on the possibility of safety improvements at Beam and Darkham weirs for canoe passage in light of other concerns.</li> </ul>	NRA		£600	95	
<ul style="list-style-type: none"> <li>Facilitate discussions between interested parties to:               <ol style="list-style-type: none"> <li>Investigate the possibility of extending the canoeing access agreement to include summer spates.</li> <li>Investigate the location of a canoe slalom within an area without incurring adverse impacts on the conservation status.</li> </ol> </li> </ul>	NRA	BCU* Other canoeists Riparian owners	£400 £400	95 95	
<ul style="list-style-type: none"> <li>Liaise with SWWSL over the future use of the little used reservoirs.</li> </ul>	NRA	SWWSL	£600	*	No work undertaken so far. Licence for Jennett's Reservoir handed in with Exe/Taw transfer licence determination.
<ul style="list-style-type: none"> <li>Continue to liaise with the planning authorities to ensure that they are aware of NRA concerns and priorities concerning recreation development in the River Torridge Catchment.</li> </ul>	NRA	LPA		*	Ongoing.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 12: IMPROVE ECOLOGICAL MONITORING</b>					
<ul style="list-style-type: none"> <li>Continue wardens surveys of rare and typical species and invasive species.</li> </ul>	NRA		£600 p.a.	*	Series of sites surveyed throughout catchment.
<ul style="list-style-type: none"> <li>Undertake a full land use analysis of catchment using aerial photograph interpretation.</li> </ul>	NRA		£26,000	95	Project postponed due to lack of funding. Software computer improvements also required.
<ul style="list-style-type: none"> <li>Continue invertebrate, plant and River Corridor Surveys.</li> </ul>	NRA		£1,200	*	Not carried out this year.
<ul style="list-style-type: none"> <li>Analyse five years data and report.</li> </ul>	NRA		£1,600	96	
<ul style="list-style-type: none"> <li>Continue trials of River Habitat Survey Methodology:</li> </ul>	NRA				
Trials			£400	*	Completed.
Adopt Method			Unknown	95	Method now established and ready to use.
<ul style="list-style-type: none"> <li>Develop and implement an audit process for monitoring the effectiveness of conservation measures incorporated into the NRA's regulatory and operational activities.</li> </ul>	NRA		£600 p.a.	*	No sites selected for audit in this catchment.
<ul style="list-style-type: none"> <li>Seek collaborative survey opportunities with other environmental organisations.</li> </ul>	NRA	DWT/EN CoCo DNP	£600 p.a.	*	No opportunities have arisen yet in this catchment.
<p>The Torridge is of prime status for otters (National Otter Survey 1990-1993):</p> <ul style="list-style-type: none"> <li>Survey and monitor those areas of the Torridge Catchment not already covered in national survey.</li> </ul>	NRA		£1,000	95	
<ul style="list-style-type: none"> <li>Continue present practice of post-mortem examination and toxicological analysis of otter casualties.</li> </ul>	NRA		£100/animal	*	4 otters examined. Discussions in progress to improve data interpretation.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 13: PROMOTE CONSERVATION INITIATIVES</b>					
<ul style="list-style-type: none"> <li>Introduce control programmes for invasive species e.g. Himalayan balsam and Japanese knotweed on NRA owned land where ecological and conservation interests require. Encourage other land and riparian owners to do the same.</li> </ul> <ol style="list-style-type: none"> <li>Investigate extent of problem.</li> <li>Develop control programmes.</li> </ol>	NRA  NRA	Riparian Owners  Riparian Owners	£600 p.a.	*  95	Wardens surveys completed at various locations in the catchment. Previous surveys have shown expanding distribution and increasing density.
<ul style="list-style-type: none"> <li>Develop and promote a collaborative project with the Tarka Project to raise awareness of the water environment and associated habitats using staff and relevant resources from the NRA and Tarka Project.</li> </ul>	Tarka Project & NRA		Unknown costs to NRA and Tarka Project	95	
<ul style="list-style-type: none"> <li>Support initiatives that encourage less intensive land management - particularly those targeted on wetlands, such as MAFF waterside fringe options, Countryside Stewardship and Wildlife Enhancement Schemes.</li> </ul>	NRA MAFF EN CoCo		Costs to MAFF, CoCo	*	Ongoing support given.
<ul style="list-style-type: none"> <li>Seek to implement buffer zones as appropriate when findings on research work are known and financial incentives are in place.</li> </ul>	NRA MAFF		Costs to NRA and MAFF		See Issue 3
<ul style="list-style-type: none"> <li>Encourage and co-operate with the setting of standards for wetland habitat and species conservation recovery based on the recommendations of the UK Biodiversity Action Plan and other initiatives.</li> </ul>	EN NRA		£1,000 p.a. + costs to EN	*	Supported and participated in the Rivers and Wetland Project.
<ul style="list-style-type: none"> <li>Participate in a collaborative project to produce a joint landscape and nature conservation assessment for the area covered by Torrridge District Council.</li> </ul>	TDC CoCo EN	DCC NRA	£1,200 £15,000 (TDC, CoCo, EN)	*	Assessment produced. Some summary leaflets available.

ACTIONS	RESPONSIBILITY		COST TO NRA	1994	PROGRESS
	LEAD	OTHER			
<b>ISSUE 14: LOSS OF SEMI-NATURAL HABITATS</b>					
<p>Where areas of wetland or associated habitat of conservation value occur, the NRA will continue to safeguard through its regulatory role and will support initiatives which maintain and extend areas of value.</p> <ul style="list-style-type: none"> <li>National R&amp;D project into 'Resource Evaluation and the NRA's Role in Wetland Conservation' (Project Number 474).</li> </ul> <p>Once completed the findings from this project will be reviewed to assess their relevance for the River Torridge Catchment.</p>	NRA	EN,DWT, CoCo FWAG LPA MAFF		*	Ongoing.
	NRA		Phase 1 £39,000	*	Final draft being assessed. Three separate reports will be produced:
			Phase 2 £75,000		<ol style="list-style-type: none"> <li>Resource Assessment</li> <li>Classification of British Wetlands</li> <li>The NRA's Role.</li> </ol> <p>R&amp;D Digest for the first 2 reports is available - See Appendix 2. A summary report is planned to cover the 3rd report.</p> <p>To be started 95/96.</p>
			£600 p.a.	98	
<b>ISSUE 15: FLOOD DEFENCE WORKS</b>					
<ul style="list-style-type: none"> <li>No schemes planned in the current five year programme.</li> </ul>					
<ul style="list-style-type: none"> <li>Continue to liaise with the planning authorities to ensure that they are aware of NRA concerns and priorities with respect to flood defence in the River Torridge Catchment.</li> </ul>	NRA	LPA		*	Ongoing

ACTIONS	RESPONSIBILITY		PLANNED COST TO NRA	ACTUAL COST 1994	PROGRESS	
	LEAD	OTHER			1994	1994 FINANCIAL YEAR
<b>ISSUE 16: FLOOD DEFENCE OPERATIONS</b>						
• Adopt SoS for defining maintenance needs on 'main river'.	NRA		£3,000	Contract completed within budget.	*	Contract completed for work in 94/95 and will be reviewed annually.
• Prepare technical contracts for all maintenance operations, incorporating environmental constraints and enhancement opportunities.	NRA		Not Known	Contract completed within budget.	*	Contract completed for work in 95/96 and will be reviewed annually.
• Undertake S105 flood risk surveys.	NRA		Not known yet		95	Surveys should be undertaken in 96/97.
• Carry out S105 asset surveys.	NRA		Not known yet		*	Ongoing
<b>ISSUE 17: ENSURE ADEQUATE PROVISION OF FLOOD WARNING IN THE CATCHMENT</b>						
• Review flood risk areas within the River Torridge Catchment.	NRA		£1,000	£250	*	Local flood warning cascades updated.
• Review existing provisions of flood warning with respect to Emergency Response Levels of Service.	NRA		£400	£400	*	Ongoing
• Recommend improvements and produce a programme of future work and cost implications as appropriate.	NRA		£400	£400	*	Ongoing

## **Wetland Resource Evaluation and the NRA's Role in its Conservation**

The NRA commissioned Environmental Consultancy, University of Sheffield (ECUS) to identify practical methods to evaluate the wetland resource and to define the NRA's role in the protection, rehabilitation and creation of wetlands in England and Wales.

The NRA has statutory duties to safeguard the nature conservation, archaeology and amenity interests of wetlands. Carrying out these duties has proved difficult in operational terms due to lack of clarity as to what constitutes a wetland and the extent of the wetland resource in England and Wales. R & D Note 377 "Resource Assessment" puts this in context, defining a wetland as:-

"Land that has (or had until modified) a water level predominantly at, near or up to 1.5m above the ground surface for sufficient time during the year to allow hydrological processes to be a major influence on the soils and biota. These processes may be expressed in certain features, such as characteristic soils and vegetation."

The report goes on to outline a practical classification for British wetlands and a strategy towards the production of a National Wetland Inventory. Much of the information required is held by other organisations. Their role and the data which they can provide is summarised.

The report recommends that existing wetland information is brought together on a regional basis with a proposed pilot study in Anglian Region. This would involve:-

- the establishment of a digital map base
- a desk exercise to collate existing information including airphoto interpretation
- field survey of key sites
- preparation of a GIS Wetland Resource Inventory

If successful this approach should be extended into other regions over the next three- five years. The costs of the resource inventory are substantial and a collaborative approach with other agencies would be appropriate.

R & D Note 378 "Classification of British Wetlands" puts forward a coarse-grained classification based on hydrotopography. This is a two-layered classification. The first layer identifies situation types, i.e. the position the wetland occupies in the landscape linked to its

principal apparent source of water. The second layer identifies hydrotopographical elements, i.e. units with a distinctive water supply. Thus a wetland in a certain situation type may contain several hydrotopographical elements.

This classification builds on a wetland definition given in a preceding R & D Note 377. It provides a basic framework to categorise wetlands and upon which can be superimposed further classifications based on other features, for example, vegetation or land use.

The report also recognises the importance of grading wetlands for operational purposes. It recommends a simple three tier evaluation based on existing conservation interest and its potential for restoration.

This classification provides a sound basis on which to begin the process of recognising and evaluating wetlands in England and Wales. It is recommended that this approach is adopted by NRA nationally.

The principal methods of implementation will be through the production of a NRA national policy on wetland conservation - this will be supplemented by a wetland strategy and a conservation technical handbook on wetlands, and through the development of a National Wetland Inventory - one region to pilot this in 1996.

R&D Note 381 "The NRA's Role in Wetland Conservation" will be completed in July and disseminated separately.

The documents produced during this contract include:

R&D Note 377: Resource Assessment

R&D Note 378: Classification of British Wetlands

R&D Note 381: NRA's Role in Wetland Conservation (to be disseminated separately)

#### Document Status

Internal Status: Released to Regions

External Status: Public Domain

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# Research and Development

R & D Digest 242

## Land Management Techniques

The objective of the project was to examine the scope of a project to develop land management techniques for the prevention of diffuse pollution of controlled waters and develop tools/procedures for rural catchment based risk assessment.

Practical methods of controlling pollution risk, including both in-field (soil conservation measures, application practices and integrated pest management strategies ) and end-of-field (buffer zone) techniques have been reviewed. It was concluded that much could be done now to reduce risk through the implementation of these low risk strategies but that there appeared to be a communication gap between completed and on-going R&D and the farmer.

Non-point source models developed in the UK and abroad have been reviewed in order to evaluate their usefulness to the NRA for the assessment of diffuse agricultural pollution risk. Models range from very simple expressions of contaminant export to complex conceptual models that predict loads to receiving waters according to environmental conditions and agricultural practice. Specifications for possible risk assessment tools, operating on low (National/Regional) and high (catchment/farm) resolutions, have been developed on the basis of this review.

Recommendations are made for future work to cover diffuse pollution risk assessment, the catchment demonstration of in-field low risk agricultural practices, and optimal buffer zone design for ameliorating run-off quality. These recommendations will be taken forward as further R&D projects.

### R&D Note 320 - Land Management Techniques

Internal Status : Released to Regions

External Status : Public Domain

### Project Record 453/7/Y - Land Management Techniques: Detailed Information

Internal Status : Released to Regions

External Status : Public Domain

Project Leader : Kay Schofield (Northumbria & Yorkshire)

Research Contractor : WRc

Copies of the report are available within the NRA from Regional R&D Co-ordinator or the

## GLOSSARY AND LIST OF ABBREVIATIONS

### **Biodiversity**

Biodiversity is a word coined by the zoologist E O Wilson to summarize the phrase 'biological diversity'. It encompasses the whole range of variation in living organisms: genetic variation, species variation and ecosystem variation. In other words - the variety of life.

### **Buffer Zone**

A strip of land typically 10-100m wide alongside rivers, which is removed from intensive agricultural use, and can reduce inputs of pollutants and improve habitat diversity and landscape.

### **Countryside Stewardship**

An initiative of the Countryside Commission in collaboration with English Nature, English Heritage and MAFF, to enhance and conserve important English landscapes, wildlife habitats and history.

### **Culm Grassland**

A habitat which comprises a characteristic mixture of marshy grassland, bog, wet heath and scrubby woodland, which collectively supports a wide range of flora and fauna. The habitat is underlain by a geological formation of sandstones and shales.

### **Hydrology**

The study of water and its dynamics.

### **Licensed Waste Disposal Sites**

Included all sites used for waste disposal since 1974, some of which are now closed.

### **Load**

The mass of a given substance discharged to a watercourse per unit time.

### **MAFF Waterside Option**

Part of the MAFF Habitat Improvement Scheme to encourage farmers to create, protect or enhance a range of wildlife habitats by managing land in an environmentally beneficial way.

### **Nutrient**

Chemical essential for plant growth, e.g. nitrate, phosphate.

### **Operating Agreement**

A formal agreement between the NRA and a water company relating to the operation and management of public water supply schemes which significantly affect the catchment.

### **Q95**

The flow that on average, is equalled or exceeded for 95% of the time.

**Redd**

Hollow created in river bed gravels by spawning salmonid fish into which the female deposits ova.

**Riparian Owner**

Owner of river bank and/or land adjacent to a river. Normally owns river bed and rights to midline of channel.

**River Catchment**

The total area from which a single river collects surface runoff.

**Semi-Natural Habitat**

Habitats which have been modified to some extent by human activity.

**Set-Aside**

The EC set-aside scheme was first introduced for the crop year 1991/92 as part of the Common Agricultural Policy reform to allow farmers to remove land from production by receiving compensation. Eligible crops are a wide range of arable crops, principally cereals.

**Unlicensed Waste Disposal Sites**

Includes all sites used for waste disposal prior to 1974 which are no longer used and all identified illegal dump sites.

**Wildlife Enhancement Scheme**

Set up by English Nature, it is a voluntary scheme which has been designed to develop an effective partnership with managers of land in Sites of Special Scientific Interest (SSSI's).

## Abbreviations

AMP2	Asset Management Plan 2
CAP	Catchment Action Plan
CoCo	Countryside Commission
CSO	Combined Sewer Overflow
DCC	Devon County Council
DoE	Department of the Environment
DNP	Dartmoor National Park
DWM	Devon Waste Management
DWRA	Devon Waste Regulation Authority
DWT	Devon Wildlife Trust
EC	European Commission
ECC	ECC Ball Clays Ltd
EN	English Nature
FA	Forestry Authority
FE	Forestry Enterprise
IoH	Institute of Hydrology
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
NFU	National Farmers Union
NRA	National Rivers Authority
OFWAT	Office of Water Services
R & D	Research and Development
SoS	Standards of Service
STW	Sewage Treatment Work
SWWSL	South West Water Services Limited
TDC	Torridge District Council
TEF	Torridge Environmental Forum
TROFA	Torridge Riparian and Fishermen's Association
UWWTD	Urban Waste Water Treatment Directive
WBB	Watts, Blake, Bearne and Co Plc
WRA	Waste Regulation Authority