

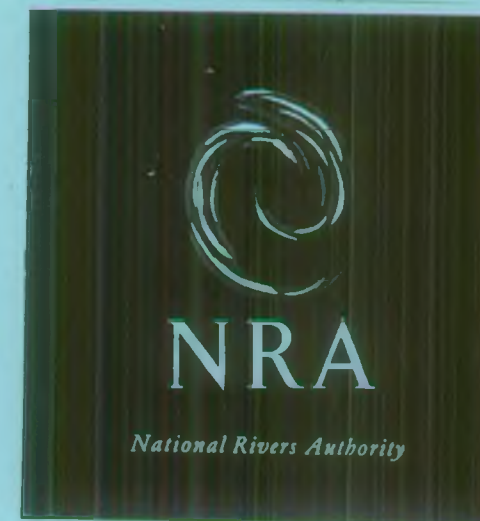
R&D(95)1A

NRA Research and Development Programme - 1994/95 and 1995/96

Schedule of On-going Projects 1994/95 and Proposed New Starts in 1994/95 and 1995/96

February 1995

External Circulation Restricted



R&D(95)1A

NRA Research and Development Programme - 1994/95 and 1995/96

Schedule of On-going Projects 1994/95 and Proposed New Starts in 1994/95 and 1995/96

February 1995

External Circulation Restricted



NRA-NRA

Note:

- For completeness, this document shows both the 1994/95 and 1995/96 Programmes.
- Projects scheduled to be completed by the end of 1994/95 are shown shaded.

Contents:

Page

•	Notes on derivation and use of Schedules	ii
•	Notes on abbreviation and nomenclature in Schedules	iii
•	Financial Summary	vii
•	Schedules of On-going Projects and Proposed New Starts for Commissions A to G	1
•	Appendix A Other R&D Budget expenditure:-	64
	(a) Technical Services	
	(b) R&D Management support	
	(c) R&D Fellowships	
•	Appendix B List of R&D projects still requiring formal sign off	67

Circulation:-

- Executive Group
- Heads of Function
- R&D Commissioners
- R&D Topic Leaders
- R&D Coordinators

Produced by R&D Section, Head Office
February 1995

Notes on Derivation and Use of this Document

This document draws together the R&D programmes proposed by each Core Function for 1995/96 with the on-going 1994/95 programme. It contains the best information on the progress of the on-going programme available to the R&D Section at 13 February 1995. Projects expected to drop out of the programme before 1995/96 are shown shaded.

1. The External R&D Budget supports the following :-

- (a) R&D Programme expenditure, excluding the costs of Core Function Staff as Commissioners, Topic Leaders and Project Leaders;
- (b) Technical Services at external national centres of expertise (Water Research Centre, Institute of Hydrology, Freshwater Biological Association and Aquatic Weeds Research Unit);
- (c) R&D Management Support (including Regional R&D Co-ordinator salary costs and contracted in support); and
- (d) R&D Fellowships.

Excluded from this are the costs of R & D Section staff in Head Office which are given in the Head Office Plan.

2. R&D Programme (Item (a) above) is divided into these sub-headings :

- (a) On-going Projects - defined as all projects underway in 1994/95 programme at 13 February 1995 - note that many on-going projects will drop out of the 1995/96 programme. On-going projects are based on Project Budget Authorisations given by 13 February 1995.
- (b) Proposed New Starts - comprising either (a) completely new projects, or (b) further phases of on-going projects. Completely new projects are listed within each Topic under the sub-heading "Proposed new starts". Projects approved in 1994/95 and expected to start in 1994/95 are shown separately from those under consideration for the 1995/96 programme. Further phases of an on-going project are listed under the sub-heading "On-going projects" with their budget preceded by an asterisk and shown on a separate line from the budget for the existing phase of the project. Budgets for either (a) or (b) will only be released on approval of a further/revised Project Initiation Document (PID).

All proposed new starts have been assessed against the revised Development Initiatives and Continuing Activities agreed by Executive Group in January 1995 and in the Head Office Plan. The "Comments" column provides details of the Initiative that is supported.

Proposed New Starts will be phased in over the year. Names in the "Contractor / Project Leader" column for Proposed New Starts are those currently identified by the Commissioner and R & D Section, in discussion with Topic Leaders and Regional Management.

Where projects are under £100k, the Topic Leader must provide both a written brief, using a proposal submission form (Summary Appraisal - PM1), and a verbal briefing, to the Project Leader. In addition, the Project Leader must develop the project through liaison with his/her Regional Coordinator. Where projects are £100k or over, the Summary Appraisal will be developed by the Topic Leader in conjunction with Head Office staff or a recognised internal National Centre and this will form the basis of a briefing and hand-over to the Project Leader.

Expenditure in 1994/95 column is at 1994/95 prices. Estimates in columns for 1995/96 and beyond are at 1995/96 prices.

Where projects attract collaborative funding, details are given in the "Comments" column, alongside details of the type of output which will be provided.

- 3. Technical Services (Item b) - Funding has been further reduced in 1995/96 in line with targeting the services to issues related to the provision of information on the best available knowledge/techniques and not routine operational enquiries.
- 4. R&D Fellowships (Item d) - Provision has not yet been made for further fellowships to be awarded in 1995/96.

Notes on Abbreviations and Nomenclature in Schedule

1. Abbreviations

A	Anglian	CCW
N/Y	Northumbria and Yorkshire	CEST
NW	North West	CIMA
S	Southern	CIRIA
ST	Severn Trent	
SW	South Western	CMP
T	Thames	COD
W	Welsh	CSO
HO	Head Office	CZMS
ADAS	Agricultural Development and Advisory Service	DoE
AEA	UK Atomic Energy Authority	DoH
AFRC	Agriculture and Food Research Council (now Biotechnology and Biological Sciences Research Council)	DTi
AWRU	Aquatic Weeds Research Unit	DTp
BA	Broads Authority	EAAC
BGS	NERC, British Geological Survey	EAU
BOD	Biochemical Oxygen Demand	EC
BSRIA	Building Services Research and Information Association	ELISAS
BTTG	British Textile Technology Group	EMS
CAP	Common Agricultural Policy	ENVAGE
		EPSRC

Countryside Council for Wales	EQS	Environmental Quality Standard
Centre for Exploitation of Science and Technology	ESA	Environmentally Sensitive Area
Construction Industry Manufacturer's Association	ESRC	Economic and Social Research Council
Construction Industry Research & Information Association	ETSU	Energy Technology Support Unit
Catchment Management Plan	EU	European Union
Chemical Oxygen Demand	FBA	Freshwater Biological Association
Combined Sewer Overflow	FHRC	Flood Hazard Research Centre (of Middlesex University)
Coastal Zone Management Strategy	FTE	Full Time Equivalent
Department of Environment	FWR	Foundation for Water Research
Department of Health	GC-AED	Gas Chromatography - Atomic Emission Detection
Department of Trade and Industry	GiA	Grant-in-Aid
Department of Transport	GIS	Geographical Information System
Environment Agency Advisory Committee	GPP	Groundwater Protection Policy
Environmental Advisory Unit - University of Liverpool (now SGS)	GPS	Global Positioning System
European Commission	GQA	General Quality Assessment
Enzyme Link Immuno-sorbent Assay	HMIP	Her Majesty's Inspectorate of Pollution
External Management Support	HPLC	High Performance Liquid Chromatography
Environmental Agency	ICOLE	International Centre of Landscape Ecology - University of Loughborough
Engineering and Physical Sciences Research Council	IDB	Internal Drainage Board
	IFE	NERC, Institute of Freshwater Ecology

IH	NERC, Institute of Hydrology
IPC	Integrated Pollution Control
JNCC	Joint Nature Conservation Committee
LIFE	EC Financial Instrument for the Environment
LOIS	NERC, Land Ocean Interaction Study
MAF	Minimum Acceptable Flow
MAFF	Ministry of Agriculture, Fisheries and Food
MAGIC	IH acidification model
MS	Mass Spectroscopy
NAWRO	National Association of Waste Regulation Organisations
NERC	Natural Environment Research Council
NWW	North West Water Services Plc
OI	Operational Investigation
OST	Office of Science and Technology
PML	NERC, Plymouth Marine Laboratory
QUASAR	Quality Simulation along Rivers
RHS	River Habitat Survey
RIVPACS	River Invertebrate Prediction and Classification System
RSPB	Royal Society for Protection of Birds
SDIA	Soaps and Detergents Industries Association
SERC	Science and Engineering Research Council, now EPSRC

SERCON	System for Evaluating Rivers for Conservation
SNH	Scottish Natural Heritage
SNIFFER	Scotland and Northern Ireland Forum for Environmental Research
SSLRC	Soil Survey and Land Research Centre
STEP	Science and Technology for Environmental Protection
STW	Sewage Treatment Works
SWQO	Statutory Water Quality Objective
TAPS	National Centre on Toxic and Persistent Substances
TBC	Toxicity Based Consent
TRADA	Timber Research and Development Association
UKASTA	United Kingdom Agricultural Supply Trade Association Ltd.
UKWIR	United Kingdom Water Industry Research
UPM	Urban Pollution Management
WAMS	Water Archive and Management System
WBS	Waterways Bird Survey
WLMS	Water Level Management Strategy
WRA	Waste Regulation Authority
WS plcs	Water Services plcs
WSA	Water Services Association

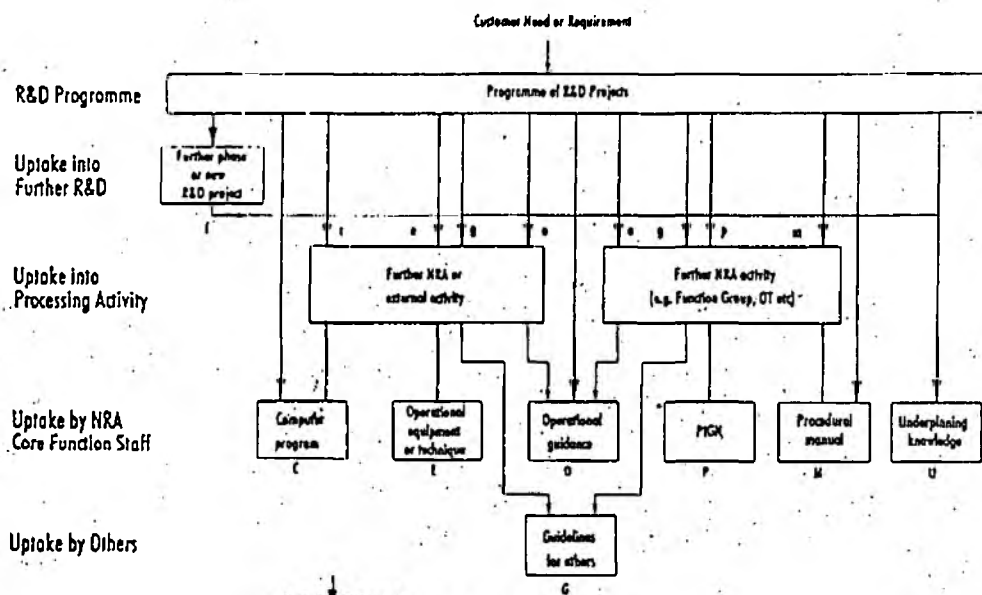
2. Nomenclature for proposals (e.g. A06(90)5) is as follows:

- "A06" refers to the Topic number or Commission reference
- "(90)" is the fiscal year (90/91) for which the proposal was first listed as a "Proposed New Start"
- "5" is the proposal number within that Topic/Commission in that year.

3. Terminology in comments column has the following connotations:

- Contribution to - NRA contribution to a project not managed by NRA (albeit that NRA may be represented on a Steering Group).
- Part-funded by - NRA receives contributions from others to a project managed by the NRA (includes jointly-managed projects). Project costs listed for projects described as "part-funded" are only NRA budget allocation. Project cost estimates for those with comment "consider part-funding" indicate full estimated project budget.
- Collaboration - NRA and other parties contribute to a jointly owned/jointly managed study.
- 94/03/HO - or similar number, indicates reference number of proposal submission form (R&D(93)19).
- Liaison with - NRA project is managed so as to interface with work managed by other party.
- Link with - Discussions between NRA R&D officers to be established for Topics or Commissions concerned.

5. Outputs and Associated Uptake



Notes: 1. R&D output

2. Diagram does not show all activities involved in dissemination.

3. Outputs designated lower case are already for dissemination

Output definitions are shown in Table 1 below:

Uptake Identifier		Output	Description
Direct	Indirect		
-	f	Further phase or new R&D project	Plan i.e. specification and justification for a new phase of research
C	c	Computer model	A complete model, enhancement to existing software or a new add-on module
E	e	Operational equipment or technique	An item of equipment or a new, or improved, technique
O	o	Operational guidance	Broad advice on day-to-day management, operational or planning issues.
G	g	Guidelines for others	Information and guidance for external organisations or the general public
P	p	Policy (PN)	Information that underpins the development of policy notes
M	m	Procedural manual	A formalised approach to the implementation of a specific procedure
U	-	Underpinning knowledge	Information that enhances the NRA's appreciation of an issue problem or opportunity

Table 1. Classification of Output Types

A provisional assessment of the type of output has been given to each project. The Project Initiation Document should cover all activities necessary to deliver the Output.

FINANCIAL SUMMARY

ITEM	COSTS £k			
	Actual	Planned	Planned	Planned
	1994/95 ¹	1995/96 ²	1996/97 ²	1997/98 ²
R&D Programme Expenditure				
Commission A	2,633	3,730	2,069	410
Commission B	660	1,023	327	139
Commission C	726	851	651	126
Commission D	361	695	555	223
Commission E	45	145	40	0
Commission F	233	583	514	80
Commission G	490	885	216	80
Sub-total	5,148	7,912	4,372	1,058
Technical Services	393	318	340	340
R&D Management Support	360	402	360	360
R&D Fellowships	86	20	0	0
Total	5,987	8,652	5,072 ³	1,758 ³
Budget	6,000 ⁴	6,900 ⁵	7,300 ⁵	7,300 ⁵

- Notes:
1. 1994/95 costs at 1994 prices
 2. 1995/96 and beyond costs at 1995 prices. The budget figures given refer to the committed On-going Projects, plus the requested Proposed New Starts identified in 1995/96
 3. Restricted to On-going Projects and Proposed New Starts from 1995/96
 4. Estimated out-turn following review - January 1995
 5. Proposed budget for 1995/96 Corporate Plan; contains over-programming. Programme will be managed to meet budget by competitive tender, slippage, phased starting of projects and review of Proposed New Starts

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
	Business Area: Statutory Water Quality Objectives Topic Area A1 - Standards and Classification Schemes On-going projects A1										Chairman: Topic Leader:	John Seager, HO Mark Everard, HO
A04(91)7 390	Joint Nutrient Study (JoNuS) To understand the scale, trends and processes of nutrient cycling in major east coast estuaries and coastal waters	11/91 1/96	16	-	12	-					MAFF-led consortium C Ashcroft	Output - U & p. NRA input to MAFF project. Total project cost £2.7M. Further phase to be justified following peer review.
A04(92)2 457	Imitisation of ammonia in estuaries To develop theoretical models which allow the concentration of toxic ammonia in estuarine waters to be calculated from a knowledge of salinity, temperature, pH and total ammonia	2/93 9/94	87								PML A Waters	Output - E & p. Supports Developmental Initiative - SWQO,
A01(94)4	Lakes - Monitoring and classification - Phase 2 To develop an effective system of monitoring and classification of lakes and other standing bodies of water	95/96 96/97			*50	*50	*60	-			University of Liverpool G Phillips	Output - p & O. Implementation to link closely with Projects 469 (Topic A1) and 479 (Topic A2).
A09(90)1 227	Metal speciation in rivers and estuaries To determine the chemical form of selected metals in rivers and estuaries	6/94 3/95	30								WRc P Bird	Output - p & o.
053 A01(95)1	Development of Environmental Quality Standards To develop environmental quality standards (EQSs) for substances of concern to the NRA Phase 3 - Further EQSs	8/94 7/95 95/96 96/97	28	-	21	-					WRc S Killeen	Output - p. Supports Developmental Initiative - SWQO, Ref No WQ11, Rank 16.
051	European pollution control philosophy To examine European pollution control strategies to assist in the development of related UK initiatives	6/94 3/96	78	-	12	-					WRc P Bird	Output - O & p. Supports Developmental Initiative - EC Directives. Part-funded by SNIFFER.
A01(93)1 469	General Quality Assessment Scheme To develop and test a General Quality Assessment scheme for rivers, estuaries and coastal waters to provide an objective and comprehensive classification framework for water quality surveys	10/93 9/95	333	-	22	-					WRc M Everard	Output - C & O. Supports Developmental Initiative - SWQO

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A08(94)5 540	Faecal coliforms in shellfish and surrounding waters To assess the link between bacterial levels in shellfish flesh and surrounding waters to control pollution	8/94 5/95	5	-	2	-	-	-	-	-	Clyde RPB J Driver	SW Output - p & O. Supports Developmental Initiative - SWQO. Contribution to SNIFFER project. Must link with associated MAFF study.
A01(94)3 557	Assessment of metals in marine sediments To assess the level of metals and particle sizes within marine sediments to support the development of GQA scheme	11/94 9/95	27	5	27	-	-	-	-	-	MAFF J Everard	ST Output - f. Collaborative project with MAFF. Supports Developmental Initiative - SWQO
A01(94)1 560	Toxicity-based criteria for assessing receiving water quality To develop and assess toxicity-based criteria in order to assess the general quality of estuarine and coastal receiving waters - Phase 1 : scoping study	12/94 3/97	31	-	26	-	21	-	-	-	WRc/TTE J Wharfe	S Output - O & p. Supports Developmental Initiative - SWQO Link to Project 469 (Topic A1).
A01(95)2	for marine waters, to include a review of biomarkers	95/96 96/97			*100	10	*100	10				
Total on-going projects, including contingent budgets, A1			595	5	322	60	231	10				
Proposed new starts A1 1994/95												
A01(94)2	National database on recreational freshwater quality To assemble all available data on recreational freshwater quality to assist in the setting of SWQOs.	94/95 95/96	5	-	10	-	-	-	-	-	J Steele	T Output - C & p. Supports Developmental Initiative - SWQO Links with WAMS project. Liaise with NRA Recreation function
Total proposed new starts, A1 1994/95			5	0	10	0						
Proposed new starts A1 1995/96												
A01(95)5	Sources and impacts of nutrients in estuaries To conduct a feasibility study on the influence of nutrients on estuarine-quality, in particular their importance to the special ecological nature of estuarine ecosystems	95/96 95/96			70	-	-	-	-	-	R Chattergee	A Output - f & p. Collaborative project, English Nature have agreed in principle to co-fund part of the work - contribution to be confirmed. Supports Continuing Activity - General Quality Assessment Scheme.
Total proposed new starts, A1 1995/96					70	0						

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
Business Area: Monitoring Topic Area A2 - Strategy and Reporting On-going projects A2											Chairman: Topic Leader:	John Seager, HO Jacqui Gough, HO	
A015	Atmospheric inputs of pollutants into surface waters To determine the organic composition of atmospheric deposition in the UK and assess the contribution of airborne pollutants to the organic content of surface waters	10/88 6/94	5								WRc J Eastwood	Output - U T	
A04(92)5 458	Estuarine water quality model To develop, as part of the NERC LOIS study, a portable estuarine water quality model to enable classification of waters in relation to GQA - Phase 2 - further development and training.	3/92 4/95 95/96 95/96						*100			NERC G Llewellyn	Output - C & M. Phase 1 contribution to a project part-funded by NERC and DoE made in 1992/93. Total project cost £5.5M. Supports Developmental Initiative - Programme of WQ monitoring.	
A02(93)2 479	Improved monitoring efficiency To undertake practical catchment-based case studies to review existing monitoring activities and to develop and demonstrate new monitoring programmes and associated data analysis tools which provide an integrated approach and value for money	11/94 6/95 95/96 97/98	152		25						WRc J Gough	Output - p & O. Supports Developmental Initiative - Programme of WQ Monitoring. Collaborative study with Po River Authority, Italy.	
A02(95)2	Phase 2 - Field trials of best practice							*50		*100		*50	
A11(92)2 482	Early warning system for potential failure of river class To develop a system that would routinely inform the NRAs as soon as possible of any river sampling point that was in danger of failing its class	7/93 8/94	13								WRc K Bedford	Output - O Supports Developmental initiative - Programme of Water Quality Monitoring. Part funded by SNIFFER.	
Total on-going projects, including contingent budgets, A2			170	0	75	0	100	0	50	0			
No proposed new starts A2 1994/95													
Proposed new starts A2 1995/96													
A02(94)1	Further testing and development of QUASAR To further develop the river quality model QUASAR to enable NRA staff to use it for specific end-user applications	95/96 95/96			100		100				IH G Llewellyn	Output - C & M. Total project cost £500k. Supports Developmental Initiative - Programme of Water Quality Monitoring. Contribution to NERC/LOIS project.	
Total proposed new starts, A2 1995/96					100	0	100	0					

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	Business Area: Monitoring Topic Area A3 - Analytical Techniques On-going projects A3									Chairman: Topic Leader:	John Seager, HO Dave Britnell, T	
A06(91)4 319	Mothproofing agents and water quality management To develop analytical methods for and examine the fate of mothproofing pesticides in the water environment and to assess the significance of the materials when discharged to aquatic systems	9/91 9/94	20							University of Salford R Armitage	Output - U & p. NY	
A03(95)1	Microbiological techniques - Phase 3 To produce and update a manual of standard microbiological techniques for the NRA with further techniques - which would include sampling analysis and quality control procedures	95/96 95/96			*50					WRc H Roberts	Output - E & m. Follows on from Project 062 (Topic A3). Part-funded by SNIFFER. Total project cost £140k. W	
A09(92)8 460	Use of supercritical carbon dioxide for extraction of trace organics To develop an automated method for the selective extraction of Red List organics (except organotin and dioxin compounds) at levels useful for Red List monitoring work	3/93 3/95	4							University of Leeds Innovations M Daniel	Output - E. Supports Continuing Activity - Other Laboratories. NY	
A03(93)1 527	Farmstat pesticides To develop analytical methods based on solid phase HPLC extraction and HPLC/MS to cover the increasing range of agrochemicals used in the environment	6/94 1/96		30		7				In-house B Brown	Output - E & O. Supports Continuing Activities - Other Laboratories. Developed out of A(93)4 Analytical Techniques. SW	
A03(94)3 533	Techniques to measure pesticide concentrations To develop techniques for the determination of low concentrations of selected pesticides (atrazine and isoproturon) and their transformation products (TPs) in the subsurface aquatic environment	7/94 5/96	53		20		8			WRc D Tester	Output - E. Supports Continuing Activities - Other Laboratories. Contribution to EC-funded project. Total project cost £400 k. Managed via National Centre on Toxic and Persistent Substances. A	
	Total on-going projects, including contingent budgets, A3		114	30	70	7	8	0				

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
A03(94)2	Proposed new starts A3 1994/95 Techniques to measure chromium by voltammetry To develop a method of analysis for chromium speciation in saline samples which achieves the sensitivity required by the client	95/96 95/96			25	-					R Yates	ST Output - E. Supports Continuing Activities - Other Laboratories.
	Total proposed new starts, A3 1994/95				25	0						
A09(92)3	Proposed new starts A3 1995/96 ELISAS for the screening of herbicides and pesticides To establish a strategy for the introduction of immunoassays into the laboratories for the cost effective analysis of samples and for screening and semi-quantification of pesticides and herbicides	95/96 95/96			50	-					M Daniel	N/Y Output - E. Evaluation of field test kits to be undertaken if successful in laboratory. Supports Continuing Activities - Other Laboratories. 91/014/Y.
A03(95)2	Analytical methodology for national EQSs for bromine and chlorine To develop a methodology suitable for field use to meet the levels of detection required by the proposed environmental quality standards for bromine and chlorine	95/96 96/97			40	-	40	-				Output - E. Supports Continuing Activities - Laboratories.
A03(95)3	Development of analytical methods for pesticides To provide analytical methods, useful to the NRA, for pesticides yet to be prioritised	95/96 97/98			50	-	60	-	50	-		Output - E. Supports Continuing Activities - Laboratories. To be rationalised with projects 527 and 533 (Topic A3). Work to be driven by TAPS centre.
A03(95)4	Analytical methods for cationic poly-electrolytes at levels of environmental significance To review available methodology and assess whether further method development is required to meet the NRA's analytical needs	95/96 95/96			20	-						Output - E. Supports Continuing Activities - Laboratories. Review to be carried out of DoE work.
A03(95)5		95/96 96/97			*30	-	*40	-				
	Total proposed new starts, including contingent budgets, A3 1995/96				190	0	140	0	50	0		

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	Business Area: Monitoring Topic Area A4 - Instrumentation and Field Techniques On-going projects A4									Chairman: Topic Leader:	John Seager, HO Paul Williams, SW (Twerton) Linked to National Centre	
A05(91)2 348	Field detection of algal toxins To develop a field test kit for the detection to a specified level of Microcystin - LR in water	9/91 5/94	5	-						Biocode M Pearson	Output - E. Link with Project 349 (Topic A4). A Biocode funding next phase.	
A10(91)7 442	Development of new techniques for the monitoring of ammonia in water - Phase 2 To develop and test in the laboratory and the field new and improved techniques for monitoring ammonia in water	1/93 9/94	28	-						M Squared Technology M Briers	Output - E & O. Implementation plan to be submitted by August 1994 N/Y	
A10(92)1 427	Assessment of field monitors for consent monitoring To assess accuracy, reliability, applicability and cost effectiveness of available equipment to enable the NRA to monitor alternative determinands to BOD and suspended solids Phase 2 - Evaluation of the best monitors	95/96 96/97			*20	2	*50	2		WRc T Long	Output - O, p & e. Part-funded by SNIFFER. Total project cost £165k. HO	
A04(93)2 507	Evaluation of mini metal sensors To evaluate bench-top metals analyser and to develop methods to enable environmental concentration in seawater of major saline metals to be determined in situ on board a survey vessel	12/93 7/94	10	-						Ecossensors N Holden	Output - e & o. Supports Developmental Initiative - Programme of WQ Monitoring. SW	
A04(94)3	Phase 2 - Support for production of prototype	95/96 96/97			*20	5	*50	5				
A04(93)1 523	Moored marine water quality monitor To develop a prototype self-contained monitoring buoy in order to fulfill our statutory obligations to monitor both out to the three mile limit and to investigate the effect of polluting discharges	3/94 11/95	17	10	28	24				In-House T Long	Output - E & m. Project manager - Paul Williams SW. Supports Developmental Initiative - Programme of WQ Monitoring. HO	
A04(94)4 532	Inland use of airborne remote sensing To review the algorithms for interpreting data from airborne remote sensing to monitor the quality of inland waters	8/94 12/95	30	28	29	2				IFE/In-house A Withers	Outputs - O & e. Supports Developmental Initiative - Water Quality Monitoring Programme. Link in with National Centre and project 509 (Topic G1). Collaborative project with NERC. NW	

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A04(94)6 570	Development of low cost nitrate and phosphate sensors To develop sensitive and low cost, solid state sensors for the determination of nitrates and phosphates in water	10/94 4/95	3	-	2	-					EC Sensors Ltd P Williams	SW Output - E. Contribution to project, with other funding from DTi, University of Newcastle "Venture Fund" and Palintest Ltd.
Total on-going projects, including contingent budgets, A4			93	38	99	33	100	7				
Proposed new starts A4 1994/95												
A04(94)1	Biochemical oxygen demand predictor and hand held instrument To develop a method of indicating the level of BOD in a discharge of receiving water to enable NRA staff to make on the spot decisions for further sampling or action Phase 1 - Feasibility study	94/95 95/96	20	5	30	-					M Briers	N/Y Output - e, O & f. Supports Developmental Initiative - WQ Monitoring. Supports Continuing Activity - Consenting and Compliance. Handheld instrument R&D must maximise procurement leverage and minimise NRA expenditure.
A04(94)2	Oil in water - a review of existing monitors To review current equipment used to monitor the presence and levels of oil in freshwaters to provide NRA staff with accurate assessment of their performance	94/95 95/96	2	-	20	-					J Frake	S Output - O & f. Supports Continuing Activity - Pollution Prevention.
A04(94)5	Instrumentation for self-monitoring To specify and/or develop the equipment for self-monitoring and auditing of compliance to provide information for NRA staff through a business study	94/95 95/96	5	-	25	-					T Long	HO Output - O & e. Supports Developmental Initiative - Environmental Agency (ENVAGE). Liaison with Monitoring EAAC Monitoring Working Group.
Total proposed new starts, A4 1994/95			27	5	75	0						
Proposed new starts A4 1995/96												
A04(95)1	Sensors or methods for the determination of residual chlorine To develop a quick and simple method to determine low levels of residual chlorine in cooling water discharges in order for the NRA to better monitor discharge consents	95/96 96/97			40	-	40	-				 Output - e. Supports Continuing Activity - Pollution Prevention.

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A04(95)2	Sensors for ammonia detection To develop improved sensors for the determination of ammonia in water in order for the NRA to improve its monitoring of this determinand	95/96 96/97			80	-	60	-			A Chappell	Output - e. Supports Development Initiative - National Water Quality Monitoring project.
A04(95)3	Sensors for nutrients To develop sensors in order to enable the NRA to make rapid on-site checks of nutrients (nitrates and inorganic phosphate)	95/96 96/97			80	-	60	-				Output - e. Supports Development Initiative - National Water Quality Monitoring project.
Total proposed new starts, A4 1995/96					200	0	160	0				

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
	Business Area: Monitoring Topic Area A5 - Biological Assessment On-going projects A5										Chairman: Topic Leader:	John Seager, HO Roger Sweeting, T	
A13(90)1 243	Testing and further development of RIVPACS - Phase 2 To provide a more uniform, objective, user-friendly approach to the assessment of biological water quality for rivers within the UK	8/92 6/95	71	-	1	-					IFE B Hemsley-Flint	N/Y	Output - E & p. Phase 3 PID to be agreed by Monitoring Business Group. Collaborative project with NERC.
A05(95)3	Phase 3 - Development of RIVPACS methodologies	95/96 97/98			*80	-	*80	-	*80	-			
A13(90)3 242	Faunal richness of headwater streams To assess the conservation value of headwater stream macroinvertebrates and their contribution to catchment macroinvertebrate richness and determine agricultural impacts upon them and propose a conservation strategy	10/90 1/95	53								IEE B Chalk	N/Y	Output - U
A08(91)3 354	Effects of low level contaminants on marine and estuarine benthic communities To evaluate experimentally the effects of low levels of contaminants on marine and estuarine benthic communities	10/91 6/94	6								PML G Bird	N/Y	Output - U Contribution to DoE Water Directorate project; interfaces with MAFF field project. Total project cost £172k.
A12(92)3 420	Methods manual for ecotoxicological monitoring techniques To establish standard operating procedures for ecotoxicological techniques and to produce and update a methods manual	9/92 8/95	7	-	-	-					WRc D Tinsley		Output M & O. Part-funded by SNIFFER. Total project cost £50k. T Reports to Ecotoxicology Working Group.
A05(95)5	Method development To provide suitable selection tests for the ecotoxicological assessment of effluent and receiving water quality	95/96 97/98			*25	-	100	-	*75	-	WRc R Sweeting		Output - E. Follows on from Project 494 (Topic A5). Supports Developmental Initiatives - Kinnersley Report Recommendations and Programme of WQ Monitoring, Ref No WQ9 & WQ 13. Reports to Ecotoxicology Working Group.
A(93)8 504	Biological assessment methods To quantify and, where possible control sources of variability in freshwater macroinvertebrate data for a range of river types and biological quality bands in order to increase the value of NRA data in water quality management	11/93 2/95	76								WRc/IFE R Dines		Output - E. Supports Developmental Initiative - Develop National Programme Water Quality Monitoring, Ref No WQ13.

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
A05(94)4 550	Ecotoxicological Quality Assessment procedures To develop quality assessment procedures for ecotoxicological methods and to provide accurate management information	10/94 3/97	16	-	12	-	7	-			WRc C Turner	N/Y	Output - f. Supports Continuing Activity - Discharge Control. Contribution to SNIFFER project.
Total on-going projects, including contingent budgets, A5			229	0	118	0	187	0	155	0			
Proposed new starts A5 1994/95													
A05(94)1	Applications of artificial intelligence in river quality surveys To undertake analysis of data held on the National Biological Database and to further investigate the distribution of macroinvertebrates throughout England and Wales	94/95 95/96	5	-	30	-					J Murray-Bligh		Output - c. Follows on from WRc project. Supports Developmental Initiative - National Water Quality Monitoring.
A05(94)2	Biological techniques of still water quality assessment To assess present methods of biological assessment, develop a suite of methodologies and illustrate the range of biological quality definitions in still waters to develop a classification framework for biological quality	95/96 95/96			35	-							Output - e. Supports Developmental Initiative - National Water Quality Monitoring.
A05(96)1		96/97 97/98					*35	-	*35		P Buckland	ST	
A05(94)3	Alternative methods of biological classification of rivers To reassess work on macroinvertebrates and other biotic indicators in a European context to provide an alternative approach for classify quality of rivers	94/95 95/96	5	-	45	-					P Logan		Output - o. Links to Thames OI/CEN work. Supports Developmental Initiative - National Water Quality Monitoring.
Total proposed new starts,including contingent budgets, A5 1994/95			10	0	110	0	35	0	35	0			
Proposed new starts A5 1995/96													
A05(95)1	Terrestrial influences on aquatic systems To evaluate the importance/influence of head waters on the biology of the whole river and ensure that catchment management plans take account of the head waters characteristics and protect them in order to maintain biological quality	95/96 95/96			20	-							Output - u & o. Collaborative study with NERC. Follows on from Project 242 (Topic A5). Link to Topic A1 and River Habitat Survey. Supports Continuing Activity - Pollution Prevention.
A05(95)4		95/96 97/98			*40	-	*60	-	*60				

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
A05(95)2	Assessment of trophic status of rivers using macrophytes To develop a national scheme of assessment of the trophic status of rivers through the interpretation of macrophyte presence and their extent in flowing waters Total proposed new starts, including contingent budgets, A5 1995/96	95/96			30	-	10	-			Output - p & O. Involvement of English Nature and Countryside Co for Wales possibly liaison with SNIFFER. Link to River Habitat Classification Scheme developed through Commission F. Supports Developmental Initiative - National Water Quality Monitoring proj.	
		96/97										
					90	0	70	0	60	0		

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
Business Area: Discharge Control and Charging Topic Area A6 - Consenting and Discharge Impact On-going projects A6										Chairman: Topic Leader:	Peter Chave, HO Gerard Morris, N/Y (Leeds)	
A01(92)7 464	UPM Management manual To produce a manual which will allow practitioners on both the regulator and sewerage undertaker sides of the industry to implement the Urban Pollution Management methodology to assess the impact of storm sewer overflows in rivers	2/93 9/94	15							WRc J Housham	N/Y Output - M. Contribution to joint NRA/FWR project under UPM programme. To draw upon Project 408, Topic A6. Supports Continuing Activity - Discharge Control. Total project cost £250k.	
A01(92)11 436	Removal of coloured effluents from dyehouses To research novel and cost effective processes for removing colour from dyehouse waste in order to minimise adverse effects on the water environment	1/93 10/95	5							University of Leeds R Armitage	N/Y Output - G & M. Contribution to a BTIG project. Supports Continuing Activity - Discharge Control. Total project cost £60k.	
A01(92)9 430	National consent translation project To establish a sound methodology for the neutral translation of consents for sewage treatment works' effluents into the format required by the EC Directive on Urban Waste Water Treatment	11/92 9/94	24							FWR G Morris	N/Y Output - O, P & C. Collaboration with water plcs, DoE Northern Ireland and SNIFFER. Total project cost £2.5M. Phase 2 collaboration with UKWIR/SNIFFER.	
A06(94)8	Phase 2 - BOD/COD relationship	95/96 96/97			*20		*50			A Warn	A	
A06(94)9	Phase 3 - Integration of upper tier/intermittent standards	95/96 97/98			*10		*50		*20			
A06(95)7	Efficacy and effects of wastewater disinfection - Phase 4 To undertake desk, laboratory and field studies of the efficiency and environmental effects of candidate disinfection processes to support NRA policies on consenting disinfected discharges	95/96 96/97			*80		*125			WRc/CES R Grantham	SW Output - o, p & U. Liaison with NRA - led Forum for Environment Impact of Disinfected Sewage Effluents (FEIDSE). Supports Continuing Activity - Discharge Control.	
A05(93)7 468	Cost benefit assessment To develop an economic benefit methodology for evaluating environmental benefits resulting from changes in water quality stemming from improvements in effluent quality	3/94 3/95	65							WRc, via FWR M Postle	HO Output - g. Collaborative project with Water Service plcs, WSA & OFWAT. Supports Continuing Activity - Discharge Control.	

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A06(94)6 493	Toxicity based consents To further develop toxicity criteria in regulatory control, to test the protocols and procedures necessary for the application of toxicity based consents	10/93 3/96	129	35	150	16					WRc J Wharfe	Output - p. Supports Developmental Initiative - Kinnersley Report S Reports to Ecotoxicology Working Group. Collaborative project with HMIP and SNIFFER.
A07(93)1 490	Identification of estrogenic substances in STW effluent To identify and quantify the component(s) present in sewage effluents that are responsible for the vitellogenic response in fish	9/93 3/96	98	-	44	-					MAFF/Brunel University G Brighty	Output - U, P & E. Two packages , one to Brunel University and one to MAFF, these run simultaneously. Figures shown are for both. Collaborative project with MAFF.
A06(94)5 534	Deposition and biological effects of organic carbon from sewage effluent To produce a validated predictive model relating to emission and settlement of suspended solids to changes in the sediment-dwelling microfaunal communities	8/94 6/96	25	-	20	-	5	-			Forth RPB B Harbott	Output - c. Supports Continuing Activity - Discharge Control, in particular UWWT Directive. Collaborative project with Forth RPB, WSA and SNIFFER.
A06(95)5	Phase 2 - Validation, statistical shell to model	95/96 95/96			*25	-						
A06(94)10 555	Implications of real time control on regulation of CSOs To undertake a scoping study to review the issues and identify the options for funding and developing knowledge of real time control on the regulation of CSOs	12/94 3/95	14	-							WRc R Freestone	Output - f. Supports Continuing Activity - Discharge Control, in particular UWWT Directive. Collaboration with UKWIR.
A06(95)6	Phase 2 - Development of protocol - pilot study	95/96 96/97			*25	-	*25	-				
A06(94)2 556	UPM implementation project To demonstrate the implementation of the Urban Pollution Management Manual and other procedures to assist NRA staff in implementing this methodology	11/94 3/95	24	-							WRc, via FWR P Whalley	Output - O. Supports Continuing Activity - Discharge Control, in particular the UWWT Directive. Collaborative project with WSA, UKWIR. Links to Project 464 (Topic A6)

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A06(94)7 565	Septic tank leaflets To produce a detailed specification (including costs) for the production of (i) a series of leaflets to provide information and guidance for those concerned with building, maintaining and regulating septic tanks and (ii) a technical guidance document for NRA pollution control staff	12/94 4/95	8	-	-	-	-	-	-	-	CIRIA B Zaba	ST Output - g & f. Funding for CIRIA scoping study.
Total on-going projects, including contingent budgets, A6			457	35	374	16	255	0	20	0		
A06(94)1	Proposed new starts A6 1994/95 Expert system for consenting discharges To develop an expert system to assist in the setting of discharge consents	94/95 95/96	5	-	50	-	-	-	-	-	M Griffiths	HO Output - e. Supports Continuing Activity - Discharge Consent. Links to the production of a consenting manual.
A06(94)3	Fate of detergents and associated chemicals in wastewater and rivers To assess the sources, transport and fate of detergents and similar chemicals to enable receiving waters to be protected	94/95 95/96	10	-	25	-	-	-	-	-	J McEvoy	NW Output - O & p. Supports Continuing Activity - Discharge Control. Liaison required with Project 490 (A6).
A06(94)11	Benefit assessment of water quality improvements To determine and quantify the benefits arising from water quality improvements in industrial river corridors in order to justify undertaking such work	94/95 96/97	24	-	71	-	-	-	-	-	University of Leeds A Edwards	N/Y Output - g. Contribution to project funded by EPSRC and ESRC on the Quantifiable City. Supports Continuing Activity - Discharge Control.
Total proposed new starts, A6 1994/95			39	0	146	0	-	-	-	-		
A06(95)1	Proposed new starts A6 1995/96 Implications of real time control for continuous discharges To assess the potential for using real time control for regulating continuous discharges	95/96 96/97	-	-	50	-	50	-	-	-	J Kinniburgh	T Output - p & g. UKWIR collaboration. Supports Continuing Activity - Consenting.
A06(95)2	UPM workbench and review of manual implementation To provide assistance for the implementation of the UPM Manual to address user problems	95/96 96/97	-	-	50	-	50	-	-	-	G Morris	N/Y Output - O. Collaboration with UPM funders. Supports Continuing Activity - Consenting.

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A06(95)3	Catchment inventories of dangerous substances in sewerage networks To provide a method for assessing the sources of dangerous substances in catchment sewerage systems to permit more effective pollution control	95/96 96/97			25	-	25	-				Output - O. Collaboration with UKWIR. Supports Continuing Activity - Consenting.
A06(95)4	Development of CSO monitoring - compliance testing To develop a simple technique for auditing new CSO structures through acceptance trials and undertaking an audit with manufacturers and designers	95/96 96/97			25	-	50	-				Output - e. Collaboration with UKWIR. Supports Continuing Activity - Consenting.
Total proposed new starts, A6 1995/96			150 0 175 0									

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	Business Area: Pollution Prevention Topic Area A7 - Rural Land Use On-going projects A7									Chairman: Topic Leader:	Peter Chave, HO Bob Huggins, SW (Blandford Forum)	
A07(94)3	Impact of pesticides on river ecology To assess the impact of different pesticides on the structure and functioning of riverine ecosystems	95/96 96/97			*20	-	*20	-				Output - U. Supports Continuing Activity - Farm Waste and Land Use. Follows on from Project 450 (Topic A7) and links with Project 453 (Topic A7). To be managed by TAPS National Centre.
A07(91)4 561	Occurrence of <u>Cryptosporidium</u> To study the presence, routes and fates of occysts in animal wastes in order to determine their potential for contaminating water courses	12/94 3/97	31	-	30	-	32	-		WRc R Sweeting		Output - o & U. Builds on work in Project 424 (Topic A7). Collaborative work with Drinking Water Inspectorate, work to be undertaken with/by Coventry University.
A02(90)3 205	Management of acid lakes by regulating nutrients - Phase 2 To obtain a viable and effective alternative methodology of habitat amelioration to liming for soft water upland lakes by addition of phosphate and monitoring changes in ecosystem and buffering capacity in order to produce a mangment tool	4/93 3/96	35	-	5	-				IFE J McEvoy	NW	Output - O, G & U. Part-funded by a consortium consisting of IFE, DoE, National Power, Powergen and Albright & Wilson. Total project costs estimated at £160k pa.
122	Effects of agricultural erosion on water courses To identify the factors affecting the yield of high sediment yielding catchment, and to produce recommendations to reduce adverse impacts of soil erosion	1/90 3/95	14	-						IH R Huggins	SW	Output - U & G. Phase 2 not with IH.
A07(95)4	Phase 2 - Assessment of opportunities for soil erosion control	95/96 96/97			*20	-	*20	-				
A02(91)4 368	Impact of erosion of forest roads on water quality To study the natural erosion processes and rates from mixed aggregate built roads in upland forests and the impacts of heavy vehicles used for timber extraction, in order to identify impact on water quality	11/91 9/94	12	-						IH R Milne	W	Output - U & G. Addition to on-going Balquhiddar project part-funded by DoE, Scottish Office and NERC. Output linked to Forest and Water Guidelines.
119	Total impact assessment of pollutants in rivers - Phase 3 To investigate the pollution of streams draining agricultural catchments and specifically, to develop a simple model of the movement of pesticides from the point of application to streams	4/92 5/94	1	-						IH M Mills	W	Output - G. Part-funded by ADAS & AFRC. Total project cost £300k. Supports Continuing Activity - Pollution Prevention.

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A02(92)5 416	Nitrogen module for the IH acidification model (MAGIC) To develop a nitrogen process module for MAGIC and to apply the model to investigate increasing nitrate in atmospheric deposition	8/92 7/95	20	-	3	-					IH A Barraclough	Output - C. N/Y
A07(94)8	Land management techniques - Phase 2 To develop management techniques for soil and nutrient conservation including buffer zones and demonstration of best practice.	95/96 96/97			*100	-	*75	-			K Schofield	N/Y Output - G, p & U. Links with Project 340 (Topic F2) and follows on from Project 453 (Topic A7). Liaison with MAFF project. Supports Continuing Activity - Farm Waste and Land Use. Phase 2 in collaboration with SNIFFER
A03(92)3 434	Pathogens from farming practices To study the incidence of pathogenic bacteria and viruses in soils receiving livestock waste and to investigate the persistence and mechanisms of transport of these organisms in the soil	10/92 11/94	5	-							WRc R Robinson	SW Output - G & U. Part-funded by SNIFFER. Total project cost £210k. Approval has been given to project; Stage 3 costs to be confirmed. Supports Continuing Activity - Farm Waste and Land Use.
A07(94)10		94/95 95/96	*18	-	*40	-						
A02(92)3 465	Impacts of fine particulates associated with timber harvesting To quantify the impacts of timber felling on stream particulate loads and to investigate methods to ameliorate long and short term sediment pollution associated with forestry land use and practice	7/93 7/96	30	-	30	-					IH R Fisher	W Output - G & O. Part-funded by NERC. Total project cost £337k. Supports Continuing Activity - Farm Waste and Land Use.
001/012	Sources, impacts and detection of farm pollution To develop biological methods for the detection of organic pollution from farms and for assessing the effectiveness of remedial action	4/90 7/94	5	-							WRc F Jones	W Output - M & E. End date put back to allow completion of project.
A02(92)10 462	Zinc from watercress farms To produce watercress with improved resistance to the crook root fungus (<i>Spongospora subterranea f. sp. nasturti</i>) and watercress yellow spot virus in order to reduce the need to treat watercress with zinc and consequent contamination of watercourses	3/93 10/96	4	-	4	-	-				Horticulture Research International S Turner	S Output - G. Part-funded by Watercress Growers Associations. Total project cost £57k. Supports Continuing Activity - Farm Waste and Land Use.
A07(93)2 502	Impact of conifer harvesting To assess the impacts of conifer harvesting and replanting on upland stream water quality with a view to identify ameliorative management strategies and the development of a model and guidelines for environmental impact assessment	1/94 12/96	83	-	77	-	60	-			IH/ITE R Fisher	W Output - O, G & C. Supports Continuing Activity - Farm Waste and Land Use. Collaborative project with NERC, total project cost £337k. Part OI/part R&D.

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A07(94)2 542	Alternative farming methods - arable To demonstrate a viable way of reducing the levels of certain agrochemicals reaching "controlled waters" which can be promoted by the NRA as "Best Practice"	9/94 10/96	35	5	35	3	2	7			Long Ashton S Wood	SW Output - O, G & p. Supports Continuing Activity - Farm Waste and Land Use. Collaboration with MAFF under CEST.
A07(94)6 553	Treatment technology for farm wastes To investigate the potential for developing new technology to treat farm wastes for disposal to land in order to reduce the level of pollution from this type of waste	10/94 10/96	30	-	30	-					Wisdom Agriculture R Merriman	W Output - E & G. Supports Continuing Activity - Farm Waste and Land Use. Collaborative project with BOC Foundation and MAFF.
A07(94)5 562	Guidance for assessing and controlling non-point sources of phosphorus To develop guidance for the assessment of the contribution of non-point sources to the phosphorus budget in rivers to assist in pollution prevention	12/94 3/95	19	-							WRc A Rees	W Output - C & O. Supports Continuing Activity of pollution prevention. Collaborative project with SNIFFER.
A07(94)4 568	Quantifying point source inputs of pesticides To investigate the importance of small point source discharges to background concentrations of pesticides in river catchments in order to improve monitoring programmes	12/94 3/95	10	-							CES A Barnden	A Output - O, G & p. Supports Continuing Activity - Farm Waste and Land Use. Managed through National Centre for Toxic and Persistent Substances.
A07(95)5		95/96 95/96			*40	-						
A07(94)1 575	Alternative farming methods - dairy To assess nutrient flow both within and between 3 separate milk dairy herds with different management regimes in order to gain a better understanding of the management techniques that will reduce PO ₄ / NO ₃ input to the aquatic environment	1/95 3/98	52	-	5	-	5	-	10		ADAS N Haylor (Winchester)	S Output - O, G & p. Supports Continuing Activity - Farm Waste and Land Use. In parallel with LINK project including ADAS, Thames Water, UKASTA, British Sugar and Perry Foundation.
Total on-going projects, including contingent budgets, A7			404	5	439	3	214	7	10	0		
Proposed new starts A7 1994/95												
A07(94)7	Best Practice Manual To develop a manual of Best Practice to help NRA staff advise farmers on how to reduce risks of pollution	94/95 95/96	3	-	50	-					R Huggins	SW Output - M. Supports Continuing Activity - Farm Waste and Land Use.
Total proposed new starts, A7 1994/95			3	0	50	0						

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A07(95)1	Proposed new starts A7 1995/96 Land use change as a result of CAP To assess the land use change that may be brought about through CAP reforms to aid pollution prevention measures	95/96 95/96			30	-					N Weatherley W	Output - p & O. Supports Continuing Activity - Rural Land Use. Possible collaboration with MAFF.
A07(95)2	Forestry and acid waters To develop a monitoring strategy to assess the effects of forestry on water quality and acidification in water courses using indicator species	95/96 95/96			80	-						Output - p & O. Supports Continuing Activity - Rural Land Use.
A07(95)3	Development of risk assessment models To develop risk assessment models as tools to be used at a farm/catchment level and regional/national level	95/96 95/96			50	-						Output - O & g. Supports Continuing Activity - Rural Land Use. Dependant on discussions between DoE and other Government departments.
A07(95)4	Acid waters survey To re-survey atmospheric deposition in order to study chemical and biological changes occurring since 1984 and to validate acidification impact assessment models	95/96 96/97			20	-	20	-				Output - e. Supports Continuing Activity - Rural Land Use. Part OI W / Part R&D. Will feed into MAGIC model.
Total proposed new starts, A7 1995/96					180	0	20	0				

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
	Business Area: Pollution Prevention Topic Area A8 - Groundwater Pollution On-going projects A8										Chairman: Topic Leader:	Peter Chave, HO Bob Harris, ST	
A08(94)5	Pollution potential of contaminated sites - Phase 2 To assess groundwater pollution potential of contaminated sites and to relate these leaching tests to target levels for acceptability with respect to groundwater	94/95 95/96	*5	-	*35	-					J Thomas	T	Output - O & m.
A14(91)3 380	Development on contaminated land - Phase 3 To provide guidance to developers and regulatory bodies in the assessment, specification, supervision and achievement of effective and safe remediation of contaminated land using the most appropriate techniques	2/94 1/96	5	-	-	-					Consortium, via CIRIA R Harris	ST	Output - G: Contribution to CIRIA project. Total project cost for Phase 3 £198k.
A08(93)5 514	Risk assessment methodology for landfills To develop a risk assessment methodology for the assessment of landfill engineering plans	11/93 3/95	10	-							Golders Associates UK Ltd R Harris	ST	Output - G & O. Contribution to DoE Waste Management project, DoE will fund 94/95. Total project cost £40k. Supports Developmental Initiative - Contaminated Land/Abandoned Mines/Waste Disposal.
A08(93)10 519	Reliability of sewers in ESAs To assess the impact of sewer leakages on groundwater quality and to identify factors which give rise to the problem and steps which can be taken to minimise the risks in order for the NRA to produce a strategy to minimise the risk of future groundwater pollution	2/94 11/94	5	-							CIRIA C Thomas	ST	Output - G & G. Contribution to CIRIA project. Total project cost £92k. Supports Developmental Initiative - Contaminated Land/Abandoned Mines/Waste Disposal, Ref No WQ27.
A08(93)11 513	Long-term monitoring of non-containment landfills To produce long term monitoring data for landfill gas and leachate for uncontained landfill sites on different aquifers in the UK, in order to provide the NRA and DoE with the technical background needed to develop waste management policy	1/94 3/95	54	-	24	-					WRc R Harris	ST	Output - O. Contribution to DoE on-going project. Supports Developmental Initiative - Contaminated Land/Abandoned Mines/Waste Disposal, Ref No WQ 27.

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A14(92)6 543	Remediation of groundwater pollution for organic solvents To develop and test a decision tree to enable the NRA to respond rapidly and rationally to both short and long term problems concerning organic solvents - Phase 2	9/94 9/94	2	-							Geraghty & Miller	Output - O. Follow on from project A14(92)2. Supports
A08(94)4		94/95 95/96	*20	-	*35	-					P Waldren	A Development Initiative - Contaminated Land/Abandoned Mines/Waste Disposal.
A08(94)3 564	Leachate recirculation To demonstrate by means of a field trial that waste and site manipulation techniques enhance both the rate of waste stabilisation and landfill gas production	12/94 9/95	20	-	20	-					University of Strathclyde R Harris	Output - O. Supports Continuing Activity - Pollution Prevention. Collaboration with DoE and DTi. ST
A08(94)2 569	Effects of old landfill sites on groundwater quality To assess the extent of groundwater and surface water pollution potentials of old sites containing domestic, commercial and co-dispersal wastes, particularly those overlying major aquifers	11/94 3/95	19	3							Geraghty and Miller International	Output - O. Supports Continuing Activity - Pollution Prevention. Managed by, or links into, National Centre on
A08(95)7		95/96 96/97			*30	-	*10	-			P Heart	A Groundwater. Scoping work to be collaborative with DoE.
A08(94)1 578	Groundwater Vulnerability Assessment Guidance To clarify the flow and transport of pollutants in soils to underpin the vulnerability classification within the GPP.	2/95 11/95	10	-	21						SSLRC P Stewart	Output - p & O. ST Supports Continuing Activity - Pollution Prevention. Links to the implementing of groundwater protection policy and the National centre. Possible collaboration IH/BGS/SSLRC.
Total on-going projects, including contingent budgets, A8			142	3	165	0	10	0				
A08(95)1	Proposed new starts A8 1995/96 Guidance for the assessment of land spreading of wastes To review the types of wastes commonly spread on land for disposal purposes and quantify acceptable sludge application rates and loadings for different wastes and different soil/subsurface	95/96 95/96			30	-						

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A08(95)2	Guidance on clean-up standards To produce a guidance manual in order to provide consistent advice on clean-up requirements for sites	95/96 95/96			85	-						Output - G, o & p. Contribution to collaborative work with DoE. Links with Project 380: Supports Developmental Initiative - Contaminated Land/Abandoned Mines. One package - guidance on clean-up required to protect water resources will be let by DoE with NRA co-funding.
A08(95)3	Cost-benefit consideration in choosing remedial technologies for contaminated land To consider the issues involved in consideration of methods in the light of costs and benefit to the environment and attempt to quantify the environmental benefits in the same terms as the costs	95/96 95/96			20	-						Output - g & p. NRA contribution to larger DoE project. Supports Developmental Initiative - Contaminated Land/Abandoned Mines.
A08(95)4	Quantification of the likely impacts of specific pollutants on groundwater supplies To develop better technical understanding of the source and distribution of the most widely legislated inorganic water contaminants in Europe in order to develop guidance and policy	95/96 96/97			75	-	5	-				Output - O, g, p & U. Possible MAFF collaboration. Liaison with steering group for similar EPSRC project. Project to build partly on Anglian OI. Supports Developmental Initiative - Contaminated Land/Abandoned Mines.
A08(95)5	Guidance manual on underground tank installations in sensitive groundwater situations To review current engineering practice and new risk minimisation techniques used in underground fluid storage tanks, with special reference to petroleum tanks beneath filling stations	95/96 95/96			10	-						Output - g. Supports Continuing Activity - Pollution Prevention.
A08(95)6	Review of R&D work in groundwater pollution area To review R&D work undertaken in this area, specifically in-situ bioremediation, in order to inform NRA staff of current position	95/96 95/96			35	-						Output - O & g. Supports Continuing Activity - Pollution Prevention. Liaison with DoE. Must build on Warren Spring report and work done at Nottingham Trent University by Paul Bardos.
A08(95)8	Civil engineering applications of geophysical investigation techniques To prepare guidance for civil engineers on the capabilities of geophysics for investigating ground contamination and groundwater pollution	95/96 96/97			20	-	20	-			CIRIA	Output - G Supports Developmental Initiative - Contaminated Land/Abandoned Mines, Contribution to CIRIA project.
Total proposed new starts, A8 1995/96					275	0	25	0				

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	Business Area: Pollution Prevention Topic Area A9 - Pollution Prevention On-going projects A9											
A09(94)7	Review of pollution emergency arrangements and remedial measures To review the NRA's response and effectiveness in dealing with pollution incidents in controlled waters, and so to specify identified areas in which improvements can be made to the current emergency service across the Regions	95/96 96/97			*20		*15				Chairman: Topic Leader: N Marshall	Peter Chave, HO Phil Chatfield, T Output - O & G. Liaison with Director of Operations emergencies initiatives.
A08(90)4 271	Production and fate of blue-green algal toxins To investigate the production and fate of cyanobacterial toxins in the environment in order to elucidate effective management strategies related to cyanobacterial blooms and scums	12/90 8/94	10								University of Dundee M Pearson	Output - U & a. A
A17(90)2 292	Development of a risk assessment tool for catchment control To produce a pollution assessment tool, applicable on a site by site basis, to calculate the the probability of that site causing unacceptable pollution to Controlled Waters	2/91 7/94	12								SRD S Halfacree	Output - C & G. Part-funded by AEA Safety & Reliability Directorate. W Implementation plan approved by Business Group.
A09(94)8		94/95 95/96	*10		*20							
A09(94)6	Use of recombinant M13 bacteriophage for pollution tracing To produce a method for tracing pollution sources with a readily available non-toxic organism that can be identified in the laboratory	94/95 96/97	*5		*80		*60				University of Lancaster P Wiggins	Output - m, f & O. Builds on Project 487 (Topic A9). Supports Continuing Activity - Pollution Prevention. NW
A01(92)8 391	Demonstration project for wastewater minimisation To identify, assess and demonstrate the benefits arising from the minimisation of industrial waste water through systematic and strategic practice in association with other regulators	4/92 5/94	16								CEST M Cheesbrough	Output - g. Contribution to CEST project, part-funded by HMIP, Yorkshire Water and BOC Foundation. Part funding Phase 2 from Welsh Office, MANWEB, including funding by Water Quality and Water Resources. HO
A09(94)9	Phase 2 - further demonstration areas including agriculture	94/95 96/97	*40		*50		*50					
A06(94)4 528	Fire water and chemical spillage retention systems To develop detailed technical guidance on NRA/DoE requirements for the planning, design and construction of containment systems for the prevention of water pollution following industrial accidents.	5/94 4/96	72		58						CIRIA B McGlashan	Output - O & G. Supports Continuing Activity - Pollution Prevention. T Follow on from Project 410. Collaborative project with DoE Toxic Substances Division.

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
A09(94)1 537	Use of industrial by-products in road pavement foundations To examine the potential for contamination of ground and surface water as a result of using industrial by-products (including reclaimed materials) in road construction, with a view to increasing the scope for the use of these materials where they can substitute for primary aggregate	8/94 7/95	20	-	-	-	-	-	-	-	CIRIA C Bolton	Output - g. Contribution to CIRIA project, collaborative work with W DTP and DoE - total project cost £100k.
Total on-going projects, including contingent budgets, A9			185	0	228	0	125	0	-	-		
Proposed new starts A9 1994/95												
A02(94)2	Distribution and dynamics of blue-green algae To assess the occurrence, variability and detection of blue-green algae and their toxins as part of a pollution prevention and monitoring strategy	94/95 95/96			20	-	60	-	-	-	M Pearson	Output - O, g & e. Supports Developmental Initiative - Programme of Water Quality Monitoring, and Continuing Activity of Pollution Prevention. Link to TAPS National Centre.
A09(94)4	Review of pollution prevention R&D outputs To review all NRA-funded pollution prevention R&D outputs and to extract relevant information in support of the Pollution Prevention Manual	94/95 94/95	10	-	-	-	-	-	-	-	P Chatfield	Output - m. Supports Continuing Activity - Pollution Prevention.
A09(94)5	Construction of bunds for oil storage tanks To produce Best Practice guidance on the design, choice of materials, construction and maintenance of bunds in order to minimise pollution problems from oil storage tanks	94/95 94/95	29	-	-	-	-	-	-	-	CIRIA T Brown	Output - g. Contribution to CIRIA project. Supports Continuing Activity - Pollution Prevention.
Total proposed new starts, A9 1994/95			39	0	20	0	60	0	-	-		
Proposed new starts A9 1995/96												
A09(95)1	Management of gully pots for optimum runoff quality To determine and document the water quality effects of roadside gully pots and produce guidance on how runoff quality can be improved through good management practices	95/96 97/98			30	-	30	-	30	-	CIRIA	Output - g. CIRIA proposal, possible collaboration with DoE, the Highways Agency and British Waterways. Links with proposals G01(94)7 and A09(94)3. Supports Continuing Activity - Pollution Prevention.
Total proposed new starts, A9 1995/96					30	0	30	0	30	0		

COMMISSION A - WATER QUALITY

Commissioner: John Seager, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
<u>Commission A collection</u>												
	Total on-going projects, including contingent budgets	2389	116	1890	119	1230	24	235	0			
	Total proposed new starts, including contingent budgets, 1994/95	123	5	436	0	95	0	35	0			
	Total proposed new starts, including contingent budgets, 1995/96	0	0	1285	0	720	0	140	0			
	TOTAL COMMISSION A, on-going and proposed new starts 1994/95 and 1995/96, including contingent budgets	2512	121	3611	119	2045	24	410	0			

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	B1 - Hydrometric Data To develop and improve hydrometric instrumentation and related techniques, including related data storage, retrieval and processing, to ensure that methods are consistent, cost effective and reliable throughout the NRA, and that output data can readily be utilised for management purposes On-going projects B1									Topic Leader:	John Adams, NW	
B01(92)2 478	Calibration of portable electromagnetic current meters at low velocities To evaluate the performance of all electromagnetic current meters currently available on the commercial market to ensure NRA staff are aware of the benefits and limitations of such meters	5/94 7/94	25	8						S Walker/HR Wallingford J Gill	Output - O Supports Continuing Activity - Hydrometry.	
B01(93)2 529	Current metering standards To improve hydrometric instrumentation to provide more accurate data to the NRA	5/94 3/95	62	7						HR Wallingford J Adams	Output - E Commercial implications, requires liaison with industry. Supports Continuing Activity - Hydrometry.	
B01(94)1 548	Evaluation of low head flow measurement techniques To establish the scale of the problem relating to low head flow measurement at certain types of abstractions and to determine the potential offered by available techniques and equipment to solve the problem	10/94 3/95	7	2						Hydrologic G Merrick	Output - E. Actively enforce the provision of abstraction licences. Supports Continuing Activity - Hydrometry.	
B01(94)4		95/96 95/96			*20						Must build on sewer flow metering knowledge.	
	Total on-going projects, including contingent budgets, B1		94	17	20	0						
B01(92)4	Proposed new starts B1 1994/95 Enhancement of ultrasonic river flow gauges To update and improve the measurement capability and accuracy of river flow gauges by the use of modern processes and electronic design together with improved software	97/98 97/98							30	S Taylor	Output - e Supports Continuing Activity - Hydrometry S Project to link with core function hydrometry national contract.	

COMMISSION B - WATER RESOURCES

Commissioner: Richard Streeter, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
B01(93)1	Performance assessments of ultrasonic and electromagnetic gauges at low velocities To determine the performance of multipath ultrasonic and electromagnetic gauges at very low water velocities	97/98 97/98							40		M Whiteman	Output - o. 93/14/A. Follows on from Project 478 (Topic B1). A Supports Developmental Initiative - Water Resources Development Strategy.
B01(94)2	Evaluation of acoustic doppler current profiler equipment To identify the limitations of the equipment and to confirm that it operates within the manufacturers specification to enable regional application	95/96 95/96			85						J Waters	Output - O. Supports Continuing Activity - Hydrometry. ST Must maximise procurement leverage and minimise NRA expenditure.
B01(94)3	Evaluation methodology for benefit of hydrometric networks To develop the procedures for assessing (1) the requirements for hydrometric data, in an appropriate geographical area (2) the benefits derived from making such data available (3) whether or not the requirements are met by existing networks (4) what additions/reductions are necessary	95/96 96/97			10	-	40	-			D Rylands	Output - U. Supports Continuing Activity - Hydrometry. T Links with WQ Instrumentation Strategy (T Long) and Project 479 - Improved monitoring efficiency (J Gough).
Total proposed new starts, B1 1994/95					95	0	40	0	70	0		
Proposed new starts, B1 1995/96												
B01(95)1	Calibration of gauging stations using portable ultrasonics To determine the feasibility of using ultrasonics to obtain high volumes of data for calibration purposes, in order to determine the limits of their use, accuracy and optimum configuration	95/96 96/97			34	-	21	-			P Spencer	Output - U & e. Supports Continuing Activity - Hydrometry.
Total proposed new starts, B1 1995/96					34	0	21	0				

PROPOSAL /PROJECT NUMBER.	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
	B2 - Flow Regimes To improve the understanding of the inter-relationship between river flow and environmental factors with regard to both availability of water resources and impact on the aquatic environment so as to achieve a balance between water consumption and environmental protection										Topic Leader:	Mike Owen, T
	On-going projects B2											
B02(93)3 491	Design tools for low flow estimation To scope the benefits and costs of a range of proposals by IH to define a programme of future collaborative research	9/93 5/94	1	-							IH M Owen	Output - f. IH contributing £260k. T Output - C. Supports Developmental Initiative - Water Resources Development Strategy.
B02(94)2	To improve and extend the application of enhanced MICROLOWFLOWS software by selected developments	94/95 95/96	*10	-	*52	-						
B02(91)2 282	Ecologically acceptable flows - Phase 2 To provide the framework for an objective method of evaluation of prescribed minimum flows based on the recognition of ecologically acceptable flows apposite to particular seasonal requirements of aquatic life forms	1/94 6/96	72	-	36	-	17	-			IH/IFE A Newman	Output - M, O & C. Supports Developmental Initiative - Water Resources Development Strategy. SW
B02(93)1 520	Determination of minimum acceptable flows To develop the concept of minimum acceptable flows (MAFs) and a policy for their application	2/94 12/95	14	-							University of Birmingham A Baxendale, Lincoln Office: 0522-513100	Output - M, O & C. Links into Project 282 (Topic B2). Supports Developmental Initiative - Water Resources Development Strategy. A
B02(93)2 515	Extended flow records at locations in England and Wales - Phase 1 To synthesize monthly records at 15 locations distributed throughout England and Wales for the period 1860-1992 to be used in the assessment of the yield of water resource systems	6/94 9/94	5	-							Climatic Research Unit UEA	Output - O & p. Supports Developmental Initiative - River Minimum Flow Objectives.
B02(94)3		95/96 96/97			*15	-	*30	-			J Mawdsley	N/Y
B02(94)1 549	Revision of SWK methodology for assessing low flows To review and revise the new NRA methodology in terms of relevant criteria, associated data needs and scoring matrix to improve consistency of results between regions	9/94 3/95	8	-							Hydrologic D Anderson	Output - M. To select low flow locations to be investigated based on objective criteria. Supports Developmental Initiative - Water Resources Development Strategy. Original methodology developed by Scott Wilson, Kirkpatrick. W
Total on-going projects, including contingent budgets, B2			110	0	103	0	47	0				
No proposed new starts B2 1994/95												

COMMISSION B - WATER RESOURCES

Commissioner: Richard Streeter, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
B02(95)1	Proposed new starts B2 1995/96											
	Enhanced low flow estimation at the ungauged site To develop techniques for incorporating the impact of variations in the timing of minimum flows and improve the statistical models in order to develop new techniques for the estimate of the flow duration curve	95/96 97/98			52	-	51	-	51	-		Output - E. Contribution to equally funded IoH project. Builds on projects 257 and 491. Will incorporate all improvements in an enhanced version of MICROLOWFLOWS. Supports Continuing Activity - Licence Applications.
	Total proposed new starts, B2 1995/96				52		51		51			
	B3 - Water Resources Management To develop and improve water resources assessment and management techniques to secure optimum strategies and policies for the use of water resources taking account of both catchment-wide and national interests On-going projects B3										Topic Leader:	Cameron Thomas, A
B03(92)5 434	Evaluating the costs and benefits of low flow alleviation - Phase 2 To undertake surveys on two specified low flow rivers to obtain data for a cost benefit analysis in order for the NRA to justify alleviating low flows	7/93 7/94	5								University of Middlesex J Sherriff HO	Output - O. Follows on from Project 401 (Topic B3).
B03(92)1 406	Expert systems for water resources management - Phase 2 To provide an intelligent assistant computer programme incorporating an expert system and data organiser to aid abstraction licence application determination and monitoring by NRA water resources officers	8/93 9/94	3								University of Surrey P Shaw S	Output - C, & O. Follows on from Project 241 (Topic B3).
B03(93)4 505	Technical procedures for licence determination To develop a methodology by which abstraction licence applications may be determined consistently and with due regard to protected rights and in-river needs	1/94 3/95	21								Sir William Halcrow J Barker W	Output - O. Supports Developmental Initiative - Water Resources Licensing Policies, Ref No WR 9.
	Total on-going projects, B3		29	0								

COMMISSION B - WATER RESOURCES

Commissioner: Richard Streeter, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
B03(93)5	Proposed new starts B3 1994/95 Metering of water abstraction - good practice manuals To produce "Good Practice Manuals" to be used as reference documents and a basis for training, giving the best type of metering for each application plus guidance on maintenance, calibration and accuracy	95/96 96/97			50	-	10	-			P Crockett	ST	Output - E, O & M. 94/38/HO. Supports Developmental Initiative - Water Resources Development Strategy. To actively enforce the provisions of abstraction licences. £5k from functional budget for possible training seminar.
B03(94)4	Incentive charges: Practical difficulties of measurement To identify the "weights and measures" type of standards which would be required for quantity based abstraction charges and to identify the practical problems and costs of meeting these standards by completing a field based review for each type of abstraction including Public Water Supply, Spray Irrigation, Industry and Agriculture	95/96 96/97			50	-	50	-			M Sitton	HO	Output - U & G. 94/41/HO. Supports Developmental Initiative - Water Resources Development Strategy. The development and use of incentive charges to manage the demand for water abstraction. Links with proposal G01(95)2 and incentive charging generally.
Total proposed new starts, B3 1994/95					100	0	60	0					
B03(95)1	Proposed new starts B3 1995/96 Standard values for economic benefit of low flow alleviation To develop a framework and operational values for the benefits of low flow alleviation, the standard values would act as an indicator of benefits without carrying out expensive survey work	95/96 95/96			15	-					J Sherriff	HO	Output - E. Supports Continuing Activity - Alleviation of Low Flows. Follows on from Project 484 (Topic B3) Benefits of low flow alleviation.
Total proposed new starts, B3 1995/96					15	0							

COMMISSION B - WATER RESOURCES

Commissioner: Richard Streeter, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
	B4 - Groundwater Resources To understand groundwater recharge mechanisms and aquifer properties including the effects of surface geology and dual porosity and to develop conceptual frameworks to harmonise groundwater modelling in order to improve integration of groundwater quality and groundwater quantity issues										Topic Leader:	Mike Egghoro, NW	
	On-going projects B4												
B04(93)1 499	National system for recharge assessment To develop an accurate, consistent and publicly defensible method of estimating mean annual groundwater recharge applicable to drift free areas of aquifer outcrop in England and Wales	10/93 2/95	64	-							IH D Burgess	Output - C, O & G. Part-funding from IH and BGS through OST Science vote. Scoping study to define project. Supports Continuing Activity - Resource Protection.	
B04(95)6		95/96 95/96			*130	*10							
B04(92)6 454	Manual of aquifer properties To assemble and publish an Aquifer Properties Manual for England and Wales in order to underpin water resources management, particularly groundwater protection policy	3/93 3/96	81	2	47	1					BGS V Robinson	Output - M. Part-funding by BGS through OST Science vote. Total project cost £482k.	
B04(92)5 455	Hydrogeological characterisation of clays To assess parameters relevant to superficial clay cover, identify missing data and pursue field evaluation of techniques for measuring these data	2/93 1/96	81	-	77	-					BGS P Birchall	Output - m. Part-funding by BGS through OST Science vote. Total project cost £480k.	
B04(93)2 541	Strategic groundwater and chalk aquifer review To undertake a strategic review with BGS and other researchers/customers into the priority areas of applied strategic research which are of concern to the NRA and other customers and into more strategic issues relevant to the work of BGS and other research groups	9/94 3/95	28	-							BGS. C Tubb	Output - F, C, E, P, M & U. Supports Developmental Initiative - Water Resources Development Strategy. Expected to endorse NRA involvement in major chalk aquifer study, and similar major issues of DoE and Water Operators. BGS to provide equal funding over three years. Awaiting DoE confirmation.	
B01(94)7		95/96 95/96			*100	-							
B03(93)1 544	Groundwater resource reliable yield To identify criteria and develop a methodology for estimating the yield of groundwater resources for use on a national basis to improve water resource planning	10/94 9/95	14	-	15	-					Entec Hydrotechnica J Aldrick	Output - O, M & U. Supports Developmental Initiative - Water Resources Development Strategy.	
Total on-going projects, including contingent budgets, B4			268	2	369	11							

COMMISSION B - WATER RESOURCES

Commissioner: Richard Streeter, Head Office

PROPOSAL /PROJECT NUMBER.	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
B04(94)1	Proposed new starts B4 1994/95 Groundwater tracer studies' manual of Best Practice To evaluate tracer testing, including an assessment of the strengths and limitations both of tracing as a general technique and of specific tracer types/compounds/groups, evaluation of UK experience of tracer testing using selected case studies and in order to produce a manual of good practice	94/95 95/96	122	-	-	-	-	-	-	-	BGS P Shaw	Output - M. Collaboration with NERC overall project size £700k. S Supports Continuing Activity - Resource Protection. Advice will be obtained from UKWIR.
Total proposed new starts, B4 1994/95			122	0	0	0						
B04(95)1	Proposed new starts B4 1995/96 Chalk porosity and fissure storage To determine whether water drains from intergranular space in the rock and from irregularities on the walls of fissures and whether "micro-fissures" are present and contribute to storage	95/96 95/96			41	-					University of Reading S Hunter	Output - U. Collaborative project with University of Reading. T Supports Developmental Initiative - Development Strategy.
B04(95)2	Improved modelling of abandoned mines To develop an improved model for the flow and solute transport in abandoned coal mines where the structure of the flow paths are different in other geological formations and require special models	95/96 97/98			17	6	17	3	17	1	S Aspinwall	Output - o. Undertake with North East Water providing £45k if contract is with University of Newcastle. Supports Developmental Initiative - Environment Agency.
B04(95)3	Strategic review of groundwater modelling To compile information on present models in use within the NRA to establish protocols for future groundwater modelling in the NRA in order to provide advice on appropriate models to be used in particular circumstances	95/96 96/97			38	-	46	-			M Grout	Output - O & e. Supports Developmental Initiative - Development Strategy. Advice will be obtained from UKWIR.
B04(95)4	Baseline quality of aquifers To obtain full information on current groundwater quality data holdings in regional archives, both in respect of data volumes and data quality, in order to devise a method of collation and presentation of the data, and report on the existing groundwater quality in the aquifers of England and Wales	95/96 96/97			10	-	15	-			P Hart	Output - U. Supports Developmental Initiative - Development Strategy. Advice will be obtained from UKWIR.
Total proposed new starts, B4 1995/96					106	6	78	3	17	1		

COMMISSION B - WATER RESOURCES

Commissioner: Richard Streeter, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	B5 - Demand Management To develop understanding of the effectiveness, cost and applicability of measures to manage the demand for water in households, industry, commerce and agriculture, including the reduction of waste in public and private water distribution systems On-going projects B5 Demand forecasting issues and methodology To derive a forecasting methodology for Public Water Supply and industrial abstraction incorporating current initiatives within the water industry and enabling the economic level of demand management to be determined and to improve knowledge of present components of water demand <div>Total on-going projects, B5</div> No proposed new starts B5 1994/95 Proposed new starts B5 1995/96 B05(95)1 Water saving technology in buildings To assess how water consumption in buildings may be reduced, if this is shown to be feasible and cost effective, NRA may produce publicity/advisory leaflets B05(95)2 Water saving in industries dependent on direct abstraction To develop and apply water saving management methods within industries reliant on their own water resources B05(95)3 Effective methods of water saving education To produce a package of educational material that can be used by the NRA to encourage water conservation and test the effectiveness of different educational approaches on reducing consumption											

COMMISSION B - WATER RESOURCES

Commissioner: Richard Streeter, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
B05(95)4	Economics of demand management To develop a framework, capable of allowing for local and regional variations, to facilitate the optimum balance of demand management investment when compared to deferment of water resource scheme investments	95/96			20							Output - O. A collaborative project with UKWIR 50/50 funding of total project costs of £40k. Supports Developmental Initiative - Developmental Strategy.
		95/96										
	Total proposed new starts, B5 1995/96			90	4	25	2					
<u>Commission B collection</u>												
	Total on-going,including contingent budgets		519	19	510	11	47	0	0	0		
	Total proposed new starts, including contingent budgets, 1994/95		122	0	195	0	100	0	70	0		
	Total proposed new starts, including contingent budgets, 1995/96		0	0	297	10	175	5	68	1		
TOTAL COMMISSION B, on-going and proposed new starts 1994/95 and 1995/96, including contingent budgets			641	19	1002	21	322	5	138	1		
	Note: Climate change issues now covered either by NRA overview in Commission G or in specific topic areas. Function Coordination via Mike Knowles.											

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	C1 - Fluvial Defences and Processes To provide a better understanding of the specialised fields of engineering hydrology and hydraulics for the practising engineer to improve design and maintenance techniques across a wide range of Flood Defence Works. To ensure that River Structures are cost effective in terms of capital investment and recurring operation and maintenance costs especially considering likely effects on the river environment due to climate change On-going projects C1										Topic Leader:	David Wilkes, T (Thames Barrier)
C01(90)1 252	Flood channel facility collaborative programme - Phase 4 To provide reliable procedures for assessing the hydraulic performance and stage discharge function of two-stage or compound river channels taking into account sediment movement	5/94 6/94	4	-							HR M Bramley (temp)	Output - M. Collaborative programme with EPSRC, DoE, MAFF and EC programme.
C01(94)3		94/95 96/97	*30	-	*30	-	*30	-	*30			
C01(94)4	Design and operation of trash screens To establish Best Practice for the design and operation of trash screens, and to produce a manual of Best Practice Phase 3 - Monitoring schemes	94/95 96/97	*5	-	*25	-	*10	-			M Whiting	T Output - M, g, q, & e.
C05(91)1 384	Sediment and gravel bed transportation To carry out field studies and monitoring of selected sites to improve management practice	2/92 5/94	4	-							University of Newcastle upon Tyne A Brooks	T Output - o & U. Co-ordinate with other functions' channel management projects via Commissioner.
C01(91)1 394	Rainfall frequency studies - Phase 1b and 2 To review current methods used for rainfall frequency analysis and develop new procedures where the current methods give unsatisfactory results. To compile the new procedures to form a volume of the proposed Flood Estimation Manual entitled "Rainfall Frequency Estimation"	2/94 5/96	65	1							IH L Aucott	SW Output - c, g & M. Memorandum of Understanding between Met Office, IH and NRA. Supports wider collaboration on Flood Estimation Manual. These further phases to this project need appraisal before approval.
C01(95)1		95/96 95/96			*36	-						
C01(93)1 508	Benchmarking for models To produce standard benchmarks against which to test fluvial flood defence models in order to provide the NRA with a decision-making tool on appropriateness for different applications	1/94 7/94	7	-							Halcrow D Pettifer	ST Output - E. Supports Developmental Initiative - Emergency Response Policy and Flood Defence management.
C01(94)5		95/96 96/97			*10	-	*30	-				
Total on-going projects, including contingent budgets, C1			115	1	101	0	70	0	30	0		

COMMISSION C - FLOOD DEFENCE

Commissioner: Lindsay Pickles, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS		
			1994/95		1995/96		1996/97		1997/98					
			Ext	Int	Ext	Int	Ext	Int	Ext	Int				
C01(94)1	Proposed new starts C1, 1994/95 Monitoring methods and techniques for fluvial defences To determine what fluvial parameters should be monitored and how to meet the needs of Flood Defence and integrate with other river management parameters	95/96 96/97			60	-	60	-			M Rowe	HO	Output - O. Supports Continuing Activity - Operational Management. Links with proposal F01(94)1 - River transect monitoring and other monitoring activities.	
C01(94)2	Scoping study and design notes for fluvial design manual To provide a framework, format and cross-referencing system to draw together new knowledge and techniques in a fluvial design manual	94/95 95/96	8	-	2	-							Output - o. Supports Developmental Initiative - Design Manual.	
C01(95)2	Phase 2 - Fluvial design manual	95/96 96/97			*40	-	*35	-			Management Support		Scoping study to link (via Commissioner) with Conservation, Navigation and Water Resources activity and project outputs.	
C01(94)6	Hydraulic design of culverts To provide guidance for non-specialist engineers on the hydraulic design of culverts	94/95 95/96	5	-	20	-					D Wilkes (temp) CIRIA		Output - M. Collaborative with CIRIA	
Total proposed new starts, C1 1994/95			13	0	122	0	95	0						
No proposed new starts C1 1995/96														
C2 - River Flood Forecasting To support the development of systems for flood forecasting, including use of weather radar information, that will provide accurate forecasts of river stage heights with increased lead times											Topic Leader:		Bob Hatton, SW	
On-going projects C2														
C02(90)3 287	Evaluation of integrated flood forecasting models To evaluate the integrated flood forecasting systems currently being commissioned or operational in the NRA, and to provide recommendations for future development	1/92 3/95	7	-							C T Marshall R Hatton		SW	Output - E, O & p. Follows on from Project 201 - Review of flood forecasting.
C02(91)1 372	Continuous monitoring of soil moisture for flood hydrology To install and test in the field instrumentation to provide continuous measurements of soil moisture and to assess the value of measurements from such instruments in an operational flood forecasting system	1/92 10/94	37	-							IH B Greenfield		T	Output - E. Further phase of former MAFF project.

COMMISSION C - FLOOD DEFENCE

Commissioner: Lindsay Pickles, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k										CONTRACTOR PROJECT LEADER	COMMENTS
		START END	1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
C02(91)2 357	Development of fully distributed models using radar rainfall data To develop the methodology to use radar data from 2km and 5km squares to construct distributed models of rainfall on a catchment basis	11/91 5/94	13									IH O Marriot T	Output - E.
C02(92)1 470	Improving the accuracy of radar rainfall data To compare accuracy of different methods of weather radar precipitation measurement and data processing technique	3/93 3/96	11	-	28							All Water Technology R Hatton SW	Output - e. Contribution to HYREX project. Total project cost £825k. Supports Developmental Initiative - Emergency Response Policy Ref No FD 9.
C02(92)2 448	Development of improved methods for snow melt forecasting To develop improved models for assessing the water content of snow packs and forecasting snow melt	2/93 9/95	20	-								IH V Brown ST	Output - c & o. External management support for Project Leader. Supports Developmental Initiative - Emergency Response Policy.
C02(93)2 510	Thunderstorm and deep convection warning system To develop a system for alerting hydrologists to the likely occurrence of thunderstorms and for forecasting the heavy rainfall associated with thunderstorms and deep convection through development of the GANDOLF system (Generating Advanced Nowcasts for Deployment in Operational Land-surface Flood Forecasting)	1/94 3/96	53	7	20	10						Metstar C Haggett T	Output - c & o. Part funded by Met. Office. Supports Developmental Initiative - Emergency Response Policy. Liaison with IH Flood Estimation Manual steering committee.
C02(94)2 546	Evaluation of integrated flood warning systems To determine how the different components of a total flood warning system can be integrated operationally to reduce flood damage (small river catchments in the Thames Basin)	10/94 3/98	1	-	1	-	1	-	1	-		Middlesex University C Haggett T	Output - U. Contribution to C Haggett's PhD.
C02(94)1 580	Comparison of radar correction and adjustment To compare radar rainfall calibration techniques and identify best practice	2/95 6/95	24	-	25	-						W S Atkins O Pollard S	Output - e. Supports Continuing Activity - Operational Management.
Total on-going projects, C2 1994/95			166	7	74	10	1	0	1	0			

COMMISSION C - FLOOD DEFENCE

Commissioner: Lindsay Pickles, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
C02(95)1	Proposed new starts C2 1995/96											
	Comparison of different forecasting models To provide a technique to quickly and easily compare river flood forecasting models in order to evaluate new and existing forecasting models	95/96 95/96			20	-						Output - e. Supports Developmental Initiative - Weather Radar.
	Total proposed new starts, C2 1995/96				20	0						
	C3 - Catchment Appraisal and Control This has been moved to Commission G2											
	C4 - Operational Management To develop the framework for management of NRA flood defence maintenance, to ensure that work programmes through the NRA are consistent, prioritised adequately, justified and cost-effective, and that the interests of other functions are recognised									Topic Leader:		Gary Lane, S
	On-going projects C4											
C04(91)2 34	Asset management planning for flood defence To develop a manual which identifies the variety of flood defences in existence, their strengths, failings and relative vulnerability, the management of their maintenance and, where appropriate, the methods available for rehabilitation	8/91 10/94		5						Binnie & Partners G Lane	ST	Output - O, M & e. Project extended to "trial" manual.
C04(91)1 317	Evaluation of alternative river maintenance strategies To develop and verify a database and methodology which assesses the benefits associated with alternative river maintenance strategies in rural, mainly agricultural catchments	4/91 9/95	38	-	13	-				Silsoe College S Powers	ST	Output - c & o.
536	Phase 2 - effects of river maintenance operations	6/94 5/95	11	-	5	-						
C04(93)1 488	Aquatic weed control operation - Phase 2 To produce Best Practice guidelines for aquatic weed control throughout the NRA in order to promote efficient and effective management practices	2/94 6/95	26	-	8	-				AWRU D Woodcock	ST	Output - U & M. Phase 1 costs have been included in the Phase 2 which has been split into stages.

COMMISSION C - FLOOD DEFENCE

Commissioner: Lindsay Pickles, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
C04(93)2 512	Evaluation of aquatic weeds research To undertake an evaluation of the past work undertaken by the AWRU for its sponsors, and to recommend how their requirements for information and advice on the management of aquatic weeds should be provided in the future	1/94 3/95	10								CEST L Pickles	Output - U. Collaborative CEST project, with British Waterways providing £4.2k contribution.
C04(94)3	Grass management operations - Phase 2 To assess routine mowing operations throughout the NRA, to implement further research identified in Phase 1, carry out field trials, and produce guidance note on Best Practice for riverbank grass management	95/96 96/97			*10		*43				Management Support ?	Output - O & e. Phase 2 to be planned as soon as possible with CIRIA.
C04(92)1 516	Management of shoaling/desilting operations To review the guidance on the safe, economic and effective disposal and the management of dredgings in order to develop Best Practice guidelines	2/94 10/94	8								CIRIA N Bray	Output - o. Liaison with Project 384 (Topic C1). Follows CIRIA project on Dredging Operations. Supports
C04(94)2		94/95 95/96	*30		*20						J Buckingham	T ST Developmental Initiative - Flood Defence Management
Total on-going projects, including contingent budgets, C4			128	0	56	0	43	0				
Proposed new starts C4 1994/95												
C04(94)1	Quality assurance for survey techniques To determine what quality of survey work the NRA should specify	95/96 96/97			30		50				D Greenaway	Output - m & O. Supports Continuing Activity - Operational Management. Ground detail survey links, where appropriate, into Project G01(92)3 and use of CASI scanner.
Total proposed new starts, C4 1994/95					30	0	50	0				
Proposed new starts C4 1995/96												
C04(95)1	Flood defence management manual - review of trial To review and modify the Flood Defence management manual in the light of its trial implementation	95/96 96/97			40		10					Output - M. Supports Developmental Initiative - Flood Defence Manual.

COMMISSION C - FLOOD DEFENCE

Commissioner: Lindsay Pickles, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
C04(95)2	Performance specifications To develop contractor performance specifications for key areas of operational management activity	95/96 96/97			10	-	60	-				Output - m & o. Supports Developmental Initiative - Flood Defence Manual.
	Total proposed new starts, C4 1995/96				50	0	70	0				
	C6 - Coastal and Tidal Defences and Processes To ensure that cost-effective and environmentally sympathetic engineering options are adopted for coastal and estuarine flood defence through a better understanding of processes in the coastal zone. To improve the planning and execution of coastal defences by adopting coastal management techniques and developing defence strategy to compensate for sea level rise										Topic Leader:	Robert Runcie, A
	On-going projects C6											
C06(92)1 459	Risk assessment for sea and tidal defence structures To define and indicate the use and understanding of probabilistic design of sea and tidal defence structures and to develop methods for assessing areas at risk for coastal and tidal flooding	2/93 3/96	62	-	34	-					HR Wallingford J Cross	Output - O, M & U. Supports Developmental Initiative - Flood Defence Management.
C06(90)4 279	Use of timber in sea defence schemes To review available information on different types of timber and preservative, and to redraft guidelines to interface with NRA policy statement on timber use.	1/91 3/95 95/96 95/96	3	-	*15	-					Timber Research & Development Association P Monk	Output - e & O. Contract to be extended with TRADA to link in with NRA policy on sustainable use of timber resources.
C06(92)2 446	Beach management manual To produce a practical manual incorporating current practice and research findings to direct engineers on planning, design, implementation and management of beaches and beach recharge schemes. Supporting projects for research feeding into the manual will be :	9/93 9/96	21	-	20	-	20	-			CIRIA R Runcie	Output - O, M & U. Co-ordinated major collaborative project feeding into CIRIA Manual.
C06(92)13 441	A. National database for monitoring data - scoping study	8/93 8/94	2	-							Carl Bro Haiste D Leggett	
C06(94)4	B. Production of national database	94/95 95/96	*20	-	*10	-						A
C06(92)15 577	C. Assessment of risks of beach recharge schemes	2/95 5/95	10	-								Dependent on HR manual scoping study.

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
C06(92)16 489	D. Use of non-aggregate materials	9/93 9/95	10	-	10	-					CIRIA M Owen EMS	Contribution to CIRIA collaborative project. Topic external advisor is Project Leader.
C06(92)3 480	Saltmarsh management for flood defence To produce practical guidelines and further advance the understanding of saltmarshes in sea defences and consequently enhance the NRA's capability in engineering and environmental management. Packages for research feeding into the guidelines will be :	7/93 6/98	13	-	9	-					Halcrow N Stevens SW	Output - O, m & U. Top budget line covers guidelines plus external consultant assistance to Project Leader. Co-ordinate with Commission F - Proposal F02(92)1; via Commissioner; undertake in liaison with MAFF Flood Defence and Conservation projects, ETSU and NERC.
C06(92)3 444	A. Saltmarsh managment guide	7/93 10/94	4	-							Multiple award Halcrow EMS	Chapters being done by University of Hull, Dr P Doody, ITE and University of Middlesex.
C06(92)17 567	B. Maintenance and enhancement of saltings	1/95 6/95	5	-	5	-					HR Wallingford Halcrow	
C06(92)18 566	C. Historic changes in saltmarshes	1/95 12/95	5	-	15	-					HR Wallingford Halcrow EMS	
C06(92)19	D. Experimental setback of saltings:	95/96			13	-	112	-	20	-	Imperial College and Institute for Estuarine and Coastal Sciences	£20k in 98/99. This budget will be split over the three projects Collaboration with Imperial College London and Institute for Coastal and Estuarine Science, Hull.
C06(92)22	i) Saltmarsh sedimentation process	98/99										
C06(92)23	ii) Mathematical modelling techniques											
C06(92)20	iii) Pollution of managed retreat sites											
C06(92)20	E. Estuary morphology	94/95 95/96	5	-	10	-						Possible collaboration with NERC (ITE).
C06(92)21	F. Saltmarsh process	94/95 97/98	10	-	55	-	55	-	50	-		Possible collaboration with NERC (ITE).
C06(92)3 433	Dissemination of Anglian Sea Defence Management Study To produce practical guidance notes setting out the approach, methods and conclusions in generic terms which will benefit other regions	11/92 5/94			1						In-house D Leggett A	Output - O, G & p. Project Manager - D Leggett, (A).
C06(92)7 522	Public safety of access to coastal structures To determine the accident record of different types of coastal structures, and to identify design features which enhance public safety while retaining the engineering effectiveness	2/94 9/95	33	-	20	-					Halcrow P Kerr NW	Output - o & g. Supports Developmental Initiative - Flood Defence Management, Ref No FD 10.

COMMISSION C - FLOOD DEFENCE

Commissioner: Lindsay Pickles, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
C06(94)3 571	Geotechnical performance of flood defence embankments To assist with development of best practice in the NRA's management of flood defence embankments in terms of assessment, maintenance and improvement of existing embankments plus design of new works	1/95 5/95	7	-	2	-					Mark Dyer Associates	Output - g. Scoping Study to joint funded project with EPSRC.
C06(95)3		95/96 95/96			*20	-					J Coultrup	A Budget held in Bristol HO.
Total on-going projects, including contingent budgets, C6			210	1	238	0	187	0	70	0		
C06(94)1	Proposed new starts C6 1994/95 Education and public awareness To seek ways of explaining to the public why beach recharge and other soft defence methods are preferred	94/95 95/96	5	-	15	-					E O'Connell	HO Output - g. Supports Continuing Activity - Operational Management. To provide guidance and recommendations for publicity leaflets.
C06(94)2	Coastal management, including standards of performance for beaches To identify the standard to which a beach should perform and how	94/95 96/97	10	-	30	-	50	-				Output - m & O. Supports Developmental Initiative - Design Manual. To design guidance.
Total proposed new starts, C6 1994/95			15	0	45	0	50	0				
C06(95)1	Proposed new starts C6 1995/96 Extreme water levels in estuaries To develop practical methods for prediction of storm water level in estuaries, affected partly by sea level and river flows	95/96 96/97			30	-	60	-				Output - o. Supports Developmental Initiative - WLMS and CZMP. Builds on work undertaken by MAFF.
C06(95)2	GPS network for long term monitoring of ground subsidence To establish a scheme for monitoring ground subsidence in the Thames Estuary, which utilises satellite technology and will be effective for the foreseeable future.	95/96 97/98			25	-	25	-	25	-	Nottingham University D Greenaway	Output - o. Contribution to collaborative project with Nottingham T University/NERC.
Total proposed new starts, C6 1995/96					55	0	85	0	25	0		

COMMISSION C - FLOOD DEFENCE

Commissioner: Lindsay Pickles, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	C8 - Response to Emergencies To evaluate the overall standards required of the NRA in flood emergencies and to establish the best methods of response, including flood and storm tide warnings, dissemination of information and operational response procedures									Topic Leader:	Senaka Jayasinghe, T.	
	On-going projects C8											
C08(91)3 431	Emergency sealing of breaches To investigate and develop alternative methods and materials for sealing breaches in NRA flood defences	4/94 1/95	15	4						Posford Duvivier A Bullivant	Output - e & o. Phase 2 to be produced as a guidance manual. A	
C08(94)1 545	Benefit of flood warning and forecasting To determine whether flood warning and forecasting systems are justified and whether the benefits of providing this service can be established	9/94 10/94	1							Middlesex University P Borrows	Output - O. Supports Developmental Initiative - Emergency Response Policy. T	
C08(94)2		95/96 96/97	*50	-	*50	-						
	Total on-going projects, including contingent budgets, C8		66	4	50	0						
	No proposed new starts C8 1995/96											
Commission C collection	Total on-going, including contingent budgets		685	13	519	10	301	0	101	0		
	Total proposed new starts, including contingent budgets, 1994/95		28	0	197	0	195	0	0	0		
	Total proposed new starts, 1995/96		0	0	125	0	155	0	25	0		
	TOTAL COMMISSION C, on-going and proposed new starts 1994/95 and 1995/96, including contingent budgets		713	13	841	10	651	0	126	0		

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k				CONTRACTOR PROJECT LEADER	COMMENTS				
			1994/95		1995/96				1996/97		1997/98	
			Ext	Int	Ext	Int			Ext	Int	Ext	Int
	D1 - Fisheries Resources To undertake relevant research into the individual or population biology of fishes in order to provide basic resource information for operational management On-going projects D1								Topic Leader: Alan Winstone, W			
D01(90)3 244	Development of a fisheries classification scheme To enable clear analysis of stock assessment data used for operational duties and to assess performance	10/90 10/94	3	-					WRc S Bailey	N/Y Output - o.		
D03(90)1 370	Design and use of fish counters To evaluate the performance of automatic fish counters and their use in monitoring adult migratory salmonid stocks	7/91 9/94	-	19					In-house J Davidson	Output - e & o. Builds on former North West OI. Budget held in NW Region.		
D01(91)2 404	Use of catch statistics to determine fish stock size To evaluate the use of migratory salmonid, eel and freshwater fish catch statistics for the management of these stocks in England and Wales and to determine how they can best be used to estimate stock size	4/92 4/95	60	-					SGS M Aprahamian	NW Output - p, O & U. ;		
D01(91)3 559	Sea trout investigations - Phase 2 To review and evaluate current knowledge, research and stock assessment capability in relation to sea trout and to design a cost effective programme of investigations which will enable the NRA to effectively manage sea trout stocks sustainably	12/94 3/95	13	-					D Solomon A Winstone	W Output - p, o & U. Integrates with Regional OIs on sea trout. Strategic project for Fisheries core function. Phase 2 will design stock characteristics and sampling programme and undertake workshop in N/Y. Supports Developmental Initiative - Migratory Fishes Management Plan.		
D01(95)3		95/96 95/96			*50	-			M Scott	W		
D03(93)3 486	Assessing salmon stocks using a hydroacoustic counter To install, operate and evaluate a hydroacoustic fish counter on the River Wye in order to produce reliable data for stock management	2/94 3/97	80	-	42	-	44	-	In-house P Gough	W Output - E. Part OI/part R&D; liaison with Project 250 (Topic D3). Supports Developmental Initiative - Harmonised Stock Assessment.		
D03(93)1 500	Effectiveness of salmonid stocking strategy To identify the most cost-effective strategies for stocking migratory salmonids in order to maximise returns of adult fish to fisheries and/or their natal river	11/93 3/95	1	-					Fishkill G Mawle	HO Output - o. Supports Continuing Activity - Fish Culture and Restocking.		

COMMISSION D - FISHERIES

Commissioner: Chris Mills, North West

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k				CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95 Ext Int	1995/96 Ext Int	1996/97 Ext Int	1997/98 Ext Int		
D03(90)2 250	Surveying by hydroacoustic techniques To evaluate and develop the use of hydroacoustic techniques to quantitatively estimate the abundance and size distribution of fish in larger watercourses and produce a field manual	5/94 9/94	12	-			In-house/Royal Holloway and Bedford New College A Butterworth	Output - e & o. T
D03(91)1 325	Development of fish stock assessment methodologies and methods To evaluate and develop efficient fishery survey strategies and methodologies and produce practical guidelines for their implementation in NRA stock	7/91 5/94	7	-			WRc I Forbes	Output - g & e. Follows on from Stock Assessment Task Group report. A
D01(94)1 579	Fish tracking developments To undertake a definition study to appraise the options to develop fish tracking equipment, in particular tags and data logging systems, in order to improve the efficiency of NRA tracking studies and to obtain a greater understanding of fish biology	2/95 3/96	16	-	74	-	MAFF W Purvis Buckley Office 0244-550124	Output - e & o. Supports Developmental Initiative - Harmonised Stock Assessment. W
D03(94)1 573	Smolt trapping using acoustic deflectors To investigate how sound can be best used to direct the route for migration in order to increase trapping efficiency, particularly in the lower reaches of large rivers.	1/95 1/97	33	-	20	- 7	IFE K Broad	Output - e. Supports Developmental Initiative - Migratory Fisheries Management Plan. Collaborative project with IFE and Fawley. SW
D01(94)2 581	Sea trout scale reading To produce an atlas for reading sea trout scales and organise a workshop to enable NRA staff to prepare and read scales in a consistent manner.	2/95 6/95	7	-	4		IFE S Chambers	Output - m. Supports Development Initiative - Harmonised Stock Assessment. N/Y
Total on-going projects, including contingent budgets, D1			234	19	190	0 51	0	
D03(93)2	Development of systems for designing and implementing surveys To develop systems for designing and implementing fisheries survey, including evaluation of alternative strategies	94/95 95/96	5	-	20	-	I Forbes	Output - e. Supports Developmental Initiative - Harmonised Stock Assessment. Follows on from Project 325 (Topic D1). A
Total proposed new starts, D1 1994/95			5	0	20	0		

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k				CONTRACTOR PROJECT LEADER	COMMENTS				
			1994/95		1995/96				1996/97		1997/98	
			Ext	Int	Ext	Int			Ext	Int	Ext	Int
D01(95)1	Proposed new starts D1 1995/96 Effects of electric fishing on fish and fishing To assess the physiological responses of fish to different electric fishing intensities in order to review electric fishing design and practices	95/96 97/98			3	-	3	-	3	-	P Hickley ST	Output - e & g. Supports Continuing Activity - Stock Assessment. Contribution to NERC CASE studentship.
D01(95)2	Stock discrimination in two coastal fisheries To identify the degree of intermixing of salmon stocks in the Morecambe Bay and Severn Estuary salmon net fisheries	95/96 97/98			35	-	35	-	35	-	P Gough W	Output - g. Supports Developmental Initiative - Migratory Fish Management Plan.
Total proposed new starts, D1 1995/96					38	0	38	0	38	0		
D2 - Environmental and Biological Influences To develop an improved understanding of the effect of environmental and biological influences on fish populations so that results from monitoring programmes can be correctly interpreted and effective fisheries management carried out when natural or man-made changes occur On-going projects D2											Topic Leader :	Nigel Milner, W
D02(90)7 312	Estuarine migratory behaviour of salmon and sea trout smolts To investigate, using advanced telemetry techniques, and describe the behaviour of Atlantic salmon and sea trout smolts during the estuarine phase of their migration	1/94 10/95			7	-	13				In-house N Milner W	Output - U. Phase 2 to look at smolts as part of the Tawe Barrage project.
D02(91)2 338	Habscore To develop a stream habitat procedure that will enable prediction of salmon abundance from stream features; and which will assist the NRA to achieve related statutory objectives	7/91 3/94			10						WRo N Milner W	Output - p, o, e & U.
D02(94)2	Coarse fish populations in large lowland rivers To identify the critical factors constraining coarse fish populations in lowland rivers and to determine management strategies to develop and improve the fisheries	95/96 96/97			*160	-	*110	-			Humberside International Fisheries Institute R Cresswell N/Y	Output - p & o. Further work builds on Project 429 (Topic D2), will be defined at internal meeting, independent advice from P Maitland is being used to complete Phase 1 and help define Phase 2.

COMMISSION D - FISHERIES

Commissioner: Chris Mills, North West

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k						CONTRACTOR PROJECT LEADER	COMMENTS		
		START END	1994/95		1995/96		1996/97			1997/98	
			Ext	Int	Ext	Int	Ext				Int
D02(94)1 551	Spawning escapement targets for Atlantic salmon To establish the optimum spawn biomass to maintain self sustaining salmon and sea trout stocks to underpin the national migratory fisheries management plan	10/94 3/95	15						WRc I Davidson W	Output - p. Supports Developmental Initiative - Fisheries Enforcement Policy.	
D02(92)2 452	Effects of stocked trout on the survival of wild fish populations To assess the effect of stocked trout on the survival of wild fish stocks in order to produce recommendations on future trout stocking policies	1/92 9/95	23	-	8	-			WRc M Walsingham NW	Output - p & o. Supports Developmental Initiative - Fisheries Enforcement Policy.	
Total on-going projects, including contingent budgets, D2			48	7	168	13	110	0			
Proposed new starts D2 1994/95											
D02(94)3	Cormorant predation on experimental fish populations To measure predation by cormorants on a known population by comparing an open with a netted lagoon in order to assess the extent of the problem	3/95 6/96	11	-	6	-	6	-	J Banks T	Output - p Supports Developmental Initiative - Fisheries Enforcement Policy.	
Total on-going projects, D2 1994/95			11	0	6	0	6	0			
Proposed new starts D2 1995/96											
D02(95)1 D02(96)1	River reach inventory To develop and map stream habitats in order to plan for the maintenance and improvement of such areas	95/96 95/96 96/97, 97/98			20	-		*100 - *50		Output - o. Supports Developmental Initiative - Migratory Fish Management Plan. Links to HABSCORE, RHS and GQA projects.	
D02(95)2 D02(96)2	Impact of low level habitat degradation in small streams To review literature and design surveys to demonstrate the variety and distribution of fish in small headwater streams in order to recommend remedial operational management practices	95/96 95/96 96/97 97/98			20	-		*50 - *30		Output - o. Supports Developmental Initiative - Fisheries Management. Links with Commission F and Topic A5.	

COMMISSION D - FISHERIES

Commissioner: Chris Mills, North West

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k				CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95	1995/96	1996/97	1997/98		
			Ext Int	Ext Int	Ext Int	Ext Int		
D02(95)3	Dee Stock Assessment Study to include development of salmon lifecycle simulation model To enhance DSA study, and review existing lifecycle models in order to devise a computer-based simulation model in order to improve decision making in the management of salmon stocks	95/96 97/98		20 -	20 -	20 -		Output - o. Supports Developmental Initiative - Migratory Fish Management Plan.
D03(95)2	Impact of stocked rainbow trout on resident fish To review the current status of rainbow trout in England and Wales and evaluate their impact on resident fish in order to recommend a future stocking policy	95/96 95/96		10 -				Output - p. Supports Continuing Activity - Stocking Practices.
D03(96)2		96/97 97/98			*30 -	*30 -		
Total proposed new starts, including contingent budgets, D2 1995/96				70 - 0	200 0	130 0		

COMMISSION D - FISHERIES

Commissioner: Chris Mills, North West

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k						CONTRACTOR PROJECT LEADER	COMMENTS		
		START END	1994/95		1995/96		1996/97			1997/98	
			Ext	Int	Ext	Int	Ext				Int
	D3 - Fisheries Management To develop and implement management strategies which assist the NRA to maintain, improve, regulate and develop fisheries in ways that are adequately justified and cost-effective On-going projects D3								Topic Leader:	Steve Bailey, N/Y (Leeds)	
D01(90)2 249	Status of rare fish To determine the present status of rare fish in certain lakes of England and Wales, and to compile related information on the ecology and genetic variation of these species which is necessary to safeguard their populations	10/90 9/94	2						IFE S Bailey	N/Y Output - p, o & U.	
D03(94)5	Survival and dispersal of stocked coarse fish To evaluate the effectiveness of stocking with coarse fish, both hatchery-reared and transferred from other waters, and to determine the most effective stocking practices	95/96 96/97			*35		*25		WRc S Axford	N/Y Output - p & o. Builds on definition study, Project 440 (Topic D3).	
D01(94)1 574	Classification of river fisheries To classify, by computer programme, all waters on the Fisheries Database and to produce a computer program for the use of all Fisheries Staff in future classifications	1/95 5/95	15		10				WRc P Lidgett	ST Output - C & M. Supports Developmental Initiative - Harmonised Stock Assessment. Leads on from Project 244 (Topic D1) using the classification scheme developed therein, would lead to a classification of waters in the NRA and provide a programme to aid future classification schemes for river quality and conservation.	
	Total on-going projects, including contingent budgets, D3		17	0	45	0	25	0			
D03(92)2	Proposed new starts D3 1994/95 Methods for fishery rehabilitation - trout To develop new methods of environmental restoration (other than water quality related) that will enable the NRA to improve, develop and rehabilitate damaged trout fisheries	94/95 96/97	10		30		10		D Willis	T Output - o. 91/081/HO. Supports Continuing Activity - Physio-Chemical Improvement. Output to be co-ordinated with those from project D03(94)2 and D03(92)3.	

COMMISSION D - FISHERIES

Commissioner: Chris Mills, North West

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k						CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97				1997/98
			Ext	Int	Ext	Int	Ext	Int			Ext
D03(94)2	Methods for fishery rehabilitation - salmon To develop new methods of environmental restoration (other than water quality related) that will enable the NRA to improve, develop and rehabilitate damaged salmon fisheries	94/95 96/97	10	-	30	-	20	-	D Bird <		

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
	E1 - Recreation and Navigation To develop specific directions and guidelines that will enable the NRA to promote the amenity and recreational potential of water and associated land, and to manage effectively navigation on waters and their related facilities where it is the navigation authority On-going projects E1										Topic Leader:	Craig McGarvey, HO
E01(91)1 498	Impact of recreation on wildlife To provide information to enable the NRA to reconcile its recreation and conservation duties	11/93 3/95	9	-							Land Use Consultants J Pygott	Output - G, o & p. Links with Topic F1. 91/016/T. Supports Developmental Initiative - Catchment Management Planning, Ref No OPS 6. Liaise with Scottish National Heritage.
E01(94)1		94/95 95/96	*5	-	*40	-						N/Y
E01(93)1 501	Socio-economic review of angling To assess the current status of angling in England and Wales and analyse the distribution of NRA rod licence holders to enable the NRA to plan and forecast income and research implications	11/93 4/94	15	-							NOP D Vickers	Output - U. Supports Developmental Initiative - Fisheries Finance Strategy and Enforcement.
Total on-going projects, including contingent budgets, E1			30	0	40	0						
E01(94)2	Proposed new starts, E1 1994/95 Demand studies - boating on NRA navigations To develop an understanding of boating demand to assist the setting of charges, price structures and prioritisation of capital and revenue works	94/95 95/96	15	-	10	-					R Vallentine	Output - O. Supports Developmental Initiative - Navigation Policy. Collaboration with BW.
Total proposed new starts, E1 1994/95			15	0	10	0						
E01(94)3	Proposed new starts E1 1995/96 Use value of NRA navigations To apply "contingent valuation" methods to NRA navigations to identify visitor value to enable the NRA to better quantify benefits of the navigation function	95/96 95/96			15	-					C McGarvey	Output - p. Supports Developmental Initiative - Navigation Policy. Collaboration with BW.
E01(95)1	Design guidelines for the recreational use of weirs To produce a set of design guidelines to modify or design weirs to make them safer for canoeists and the general public	95/96 96/97			30	-	20	-			H Partridge	Output - g & o. Supports Developmental Initiative - Boat Safety Scheme. Possible collaborative project with British Canoe Union.

COMMISSION E - RECREATION AND NAVIGATION

Commissioner: Paul Raven, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
E01(95)3	Feasibility of options for lock automation To investigate the feasibility of using power generation from river flow to power locks and sluices in remote locations	95/96 96/97			20	-	20	-			J Hogg	Output - e. Supports Developmental Initiative - Navigation A Activities Review. Possible collaborative project with BW.
E01(95)4	Demand and supply study - needs of disabled people To understand where and what amenities and facilities people with disabilities require in order to develop NRA policy and planning	95/96 95/96			30	-					R Hamilton	Output - U & p. Supports Developmental Initiative - Site Management. SW Possible collaborative project with BW and Sports Council.
Total proposed new starts, including contingent budgets, E1 1995/96			95 0 40 0									
<u>Commission E collection</u>												
Total on-going projects, including contingent budgets			30	0	40	0	0	0	0	0		
Total proposed new starts 1994/95			15	0	10	0	0	0	0	0		
Total proposed new starts 1995/96			0	0	95	0	40	0	0	0		
TOTAL COMMISSION E, on-going and proposed new starts 1994/95 and 1995/96, including contingent budgets			45	0	145	0	40	0	0	0		

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
		START END	1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext			Int
	F1 - Conservation Resource Appraisal and Impact Assessment To develop effective survey, monitoring and classification methods for assessing the conservation resource of inland and coastal waters and associated lands, and to evaluate the impacts upon and clarify acceptable criteria for maintaining and enhancing the conservation status On-going projects F1									Topic Leader	Peter Barham,A	
F01(90)25 294	Control of invasive riparian and aquatic weeds To control the spread of invasive plants and to formulate and promote good management practices which would enhance the conservation and amenity value of areas for which the NRA is responsible	2/91 5/94	2	-						ICOLE E Roblin (Swansea Office 0492 645300)	W Output - O. Phase 1 - manual on chemical methods.	
F01(94)12	Impact assessment and acceptable conservation criteria To evaluate impacts upon and identify acceptable criteria for maintaining and enhancing the conservation status of inland and coastal waters and associated land in England and Wales	95/96 95/96			*20	-	*30	-		P Barham	A Output - O & p. Develop by project definition studies. Low flows, eutrophication, habitat disturbance are key areas. Links with all other Commissions. Probable collaboration with English Nature.	
F01(94)11	Rehabilitation of degraded habitats To determine the effects of land use and river management practices on riverine habitats so as to more objectively define and implement an effective rehabilitation programme for degraded river corridors	95/96 96/97			*20	-	*50	-		J Pygott	N/Y Output - o & p. Follow-up to Project 340 (Buffer zones - Topic F1) and Project 477 (Topic F1). Co-ordinate with other functions' channel management projects via Commissioner.	
F01(93)1 554	Impact of NRA activities on archaeology To review the duties of the NRA to archaeology and the approach to be taken towards archaeological sites and discoveries, in order to enable effective execution of the NRA's statutory responsibilities in this area	10/94 3/95		-	25					In-house L Thomas	W Output - o. Supports Continuing Activity - Management Plans.	
F01(93)3 517	River morphology and plant relationships To establish key relationships between physical characteristics of river types and associated aquatic plant communities by analysing data collected by JNCC	2/94 7/94		5	-					T Rawell P Raven	HQ Output - g & f. Supports Developmental Initiative - Conservation Criteria/Classification.	

COMMISSION F - CONSERVATION

Commissioner: Paul Raven, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
F01(94)2 526	Validation and calibration of River Habitat Survey data To calibrate and validate River Habitat Survey (RHS) methodology by sampling river and stream sites in England and Wales and quality checking selected sites being surveyed by NRA staff	5/94 9/94	48	-							IFE P Raven	Output - e. Supports Developmental Initiative - Conservation Criteria/Classification. Liaison with Project 469 (Topic A1) on General Quality Assessment.
F01(94)7	Phase 2 - To establish a monitoring network and systems (including database) for RHS	95/96 96/97			*150	-	*180	-				HO
F01(94)5 530	Working classification of River Habitat Survey To analyse RHS field survey data and generate a national river typology and habitat quality classification in order to produce a national methodology to be implemented in 1995/96	6/94 3/95	34	-							IFE P Raven	Output - e. Supports Developmental Initiative - Conservation Criteria/Classification.
F01(94)1 539	River channel typology for catchment and river management To develop a standard method of surveying channel cross-sections with respect to forming an associated vegetation/habitat structure, in a fashion amenable to easy data management and computerisation	8/94 3/95	27	-							Geodata A Brookes	Output - O & M. Supports Developmental Initiative - Conservation Criteria/Classification. Link with Topic C1 and C01(91)3.
F01(94)8		95/96 95/96			*20	-						
F01(94)6 563	Updating the Waterways Bird Survey (WBS) To assess the feasibility of rhodifying the WBS method to ensure that the NRA will potentially have the capability of assessing waterbird population changes at a local site and compare this with national trends	12/94 3/95	10	-							British Trust for Ornithology C Beaver	Output - f. Links with Project 400 (Topic F1) and follows on from Project 373 (Topic F1). Contribution to major project funded by JNCC, DoE and RSPB.
F01(94)9		95/96 95/96			*10	-						HO
Total on-going projects, including contingent budgets, F1			126	25	220	0	260	0				
F01(93)2	Proposed new starts, F1 1994/95 Conservation assessment and management strategies for ponds and other small water bodies To develop a cost-effective, predictive means of assessing the conservation status of ponds and to identify management techniques which optimise aquatic and associated terrestrial habitats	95/96 95/96			25	-					A Sansom	Output - e & g. Contribution to DoE project. Supports Development Initiative - EC Directives and International Commitments, Ref No WQ10.
F01(94)10 576	Environmental impact of hydro-power schemes in upland rivers To produce a feasibility study collating information on the environmental impact of hydro schemes, identifying information gaps and addressing environmentally sensitive issues in order to make recommendations for future phases of work, if appropriate	2/95 5/95	5	-	4	-					IFE C Beaver	Output - g. Collaboration with SNH, EN & CCW
Total proposed new starts, F1 1994/95			5	0	29	0						

COMMISSION F - CONSERVATION

Commissioner: Paul Raven, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
	Proposed new starts, F1 1995/96											
F01(95)1	Review for conservation input to HMIP/WRA authorizations To assess the extent of likely increased scope in conservation responsibilities in ENVAGE with respect to HMIP and WRA activities and to identify areas of work and associated requirements to fulfil their new responsibilities	95/96 95/96			20	-					P Raven HO	Output - p. Collaborative project with HMIP, WRA and nature conservation agencies. Supports Developmental Initiative - Environment Agency. Project to be co-ordinated through EAAC R&D Working Group.
F01(95)2	Quality assessment of the conservation value of rivers To establish a sound basis for assessing the quality of rivers on an integrated basis of functional and process mechanisms acting through water quality, water quantity and habitat structure to identify a sound evaluation framework to be tested in the field	95/96 95/96			-	2					In-house M Everard HO	Output - o. In-house scoping to be followed by contracted out phase 2. Supports Developmental Initiative - Conservation Criteria and Classification.
F01(95)5		95/96 96/97			*35	-	*35	-				
F01(95)3	Woody debris in rivers To assess the ecological value of organic debris in rivers in order to assess consequences for river management	95/96 96/97			10	-	10	-			University of Birmingham	Output - o. Supports Developmental Initiative - Conservation Criteria and Classification. Contribution to project with Forestry Authority, NERC and IH.
F01(95)4	Conservation evaluation using SERCON To test the applicability of SERCON evaluation in pilot catchments and assess the options for wider implementation	95/96 96/97			9	-	9	-				Output - e. Supports Developmental Initiative - Conservation Criteria and Classification. Contribution to SNH project.
	Proposed new starts, including contingent budgets, F1 1995/96				74	2	54	0				
	F2 - Conservation Management To develop management strategies and techniques which are consistent and effective from the Conservation viewpoint, compatible with the NRA's other duties where possible, and justifiable in terms of costs and the NRA's statutory responsibilities										Topic Leader:	Richard Howell, w
F01(91)11 400	On-going projects F2 Appraisal of conservation enhancement of flood defence works To develop a method for post-project appraisal of habitat conservation and enhancement works and to assess the value of such works in relation to natural recovery from NRA operational schemes	3/92 3/95	4	-							ICOLE G Daly A	Output - o. Follows from Project 285 (Topic F2).
F02(95)6		95/96 95/96			*50	-						

COMMISSION F - CONSERVATION

Commissioner: Paul Raven, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
F01(91)10 352	Aquatic flora database To develop and update a computerised database of submerged and floating aquatic vascular plants in order to provide up to date information on their occurrence and distribution	10/91 3/95		5							ITE J Hogger	N/Y	Output - C & o. Phase 2 for emergent plants, Phase 3 production of atlas and database. End date put back to allow completion of project.
F01(91)1 378	Conservation of freshwater crayfish To assess the impact of introductions of non-native crayfish and outbreaks of crayfish plague on freshwater ecosystems and to formulate a strategy for the conservation of the native species (<i>Austropotamobius pallipes</i>)	1/92 12/94		34							University of Nottingham J Hogger	N/Y	Output - o. Technical collaboration with English Nature and MAFF. Further work in collaboration with JNCC and MAFF.
F02(95)3		95/96 95/96				*20							
F01(91)2 383	Wetland creation/river corridor enhancement To assess the conservation value of 'off-river' wetland habitats created during a river corridor enhancement programme and investigate experimental management techniques for increasing the native conservation value of created habitats	1/92 1/95		8	1						Pond Action A Driver	T	Output - o & e. Part Of/part R&D. Links with Topics B2, C1 and C3.
F02(94)3	Species management in aquatic habitats To identify effective management strategies for protecting and enhancing the status of rare or dispersed species and minimising the impact of nuisance species, associated with inland and coastal waters in England and Wales	95/96 97/98				*30		*30		*30			Output - o & p. Builds on Project 461 (Topic F2). Probable collaboration with English Nature re. "Species Recovery Programme". Outputs will produce species management linked to EC habitats. Supports Developmental Initiative - EC Directives.
A02(91)1 313	Classification of catchment sources in relation to the ecological effects of wetland lining To refine the understanding of the potential biological effects of catchment lining on important conservation resources and produce a classification system for upland wetlands of different conservation value and susceptibility	7/91 5/94		2							University of Wales Cardiff I Thomas	W	Output - U & G. Part-funded by CCW. Phase 3 has been awarded.
F02(94)1	Conservation in coastal areas To clearly define and interpret NRA legal responsibilities in the coastal zone and relate these to the legal responsibilities of other relevant organisations and to NRA's own conservation duties	95/96 96/97				*30		*30					Output - o & p. Co-ordinate with coastal group via Commissioner. Supports Continuing Activity - Management Plans. Phase 1, Project 472 (Topic F2), was a legal scoping study.

COMMISSION F - CONSERVATION

Commissioner: Paul Raven, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS	
			1994/95		1995/96		1996/97		1997/98				
			Ext	Int	Ext	Int	Ext	Int	Ext	Int			
F02(94)2	Wetland conservation To develop a working classification of wetlands, define the NRA's responsibilities for wetland conservation and recommend options for assessing the wetland resource in England and Wales	95/96 97/98			*30	-	*45	-	*50	-	L Jenkins	SW	Output - o & p. Builds on Project 474 (Topic F2). Co-ordinate with Wetland Liaison Group. Collaboration with MAFF and English Nature. Link with Water Resources function and Commission G work.
F02(93)2 525	Survey of habitats for invertebrates on exposed riverside sediments To review information obtained from river corridor habitat and other NRA surveys on habitat features in order to assess their likely importance	5/94 4/95	13	-	-	3					Entomological Monitoring Services		Output - g. Support Continuing Activity - Appraisal/Survey.
F02(95)4		95/96 96/97			*20	-	*20	-			D Leeming	T	
F01(94)4 535	Root disease of alder To obtain information on the distribution of diseased alders in different catchments and determine the rate of intensification of the disease and factors influencing this rate in order to determine the potential impact of the spread of the disease and suggested actions to minimise the effects	7/94 3/95	10	-							Forestry Authority		Output - g. Supports - Continuing Activity - Management Plans/Improvements. Collaborative project, others include Forestry Authority, MAFF, National Grid and English Nature.
F02(95)3		95/96 96/97			*25	-	*25	-			J Dalton	HO	
Total on-going projects, including contingent budgets, F2			76	1	205	3	150	0	80	0			
No proposed new starts F2 1994/95													
Proposed new starts F2 1995/96													
F02(95)1	Conservation targets for catchment and coastal management plans To produce an objective framework for setting conservation targets for CMPs in order to ensure a consistent approach to identifying and prioritising conservation issues	95/96 96/97			20	-	20	-					Output - o & g. Supports Developmental Initiative - Conservation Criteria and Classification, PID to be put to CMPG as joint sponsor.
F02(95)2	Economic evaluation for conservation enhancement works To evaluate the benefits of enhancement works using appropriate criteria, consider the benefits relative to spend and underscore the development of a manual/methodology for routine appraisal of enhancement works	95/96 96/97			30	-	30	-			G Daly	A	Output - o. Supports Continuing Activity - Catchment Management Plans.
Total proposed new starts, F2 1995/96					50	0	50	0					

COMMISSION F - CONSERVATION

Commissioner: Paul Raven, Head Office

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
<u>Commission F collection</u>												
	Total on-going projects, including contingent budgets		202	26	425	3	410	0	80	0		
	Total proposed new starts 1994/95, including contingent budgets		5	0	29	0	0	0	0	0		
	Total proposed new starts 1995/96, including contingent budgets		0	0	124	2	104	0	0	0		
	TOTAL COMMISSION F, on-going and proposed new starts 1994/95 and 1995/96, including contingent budgets		207	26	578	5	514	0	80	0		

COMMISSION G - CROSS FUNCTIONAL

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
	G1 - Cross functional The Cross-functional Commission covers major issues relating to more than one of the NRA's primary functions. Projects undertaken in this Commission must have a nationally-acknowledged customer or sponsor and be accepted by the Commissioners whose functions are charged.											
	On-going projects G1											
F01(91)6 351	Environmental assessments undertaken by external developers - Phase 2 To provide the NRA with operational evaluation of guidance on responses to environmental assessments produced by others	7/93 3/95	30								WRc A Brookes	Output - e, o & p. Supports Continuing Activity - Environmental Assessment. Customer - Director of Water Management and Science. Co-ordinate through EA Steering Group.
G01(95)1	Phase 3 - To extend and update the range of guidance notes on environmental assessments for the use of the NRA and external developers	95/96 95/96			*25							
G01(92)1 409	Lone worker alarm - Phase 2 To provide a means by which employees working alone can summon assistance in the event of an immobilising accident or sudden illness and to study the wider potential for "out of vehicle" communications via the NRA radio system	8/94 3/96	106		185						Kennedy & Donkin/Tunstall D Dunn	Output - E & O. Supports Developmental Initiative - Lone Worker Alarm. Customer - Director of Operations.
G01(91)5 388	Review of specific legal issues To undertake a study of the law and practice of the Authority in relation to fish farming, with particular emphasis upon the farming of trout, but	1/93 3/95	5								University of Kent M Davis	Output - p, O & g. Supports Continuing Activity - Legal Support. Pilot study considering one specific subject in depth to assess
G01(95)6	also encompassing related difficulties arising from the farming of freshwater fish and crayfish	95/96 95/96			*40							S
G01(94)2	Functional Analysis of European Wetland Ecosystems To participate in relevant wetlands management research undertaken on behalf of the European Commission (DG XII) STEP to direct EC policy in this area and to define future wetland R&D requirements for both EC and NRA	94/95 95/96	*20		*20						University of Exeter M Everard	Output - o, p, g & U. Customer - Director of Water Management and Science. Co-ordinate via Wetland Liaison Group. Supports Developmental Initiative - Catchment Management Planning, Ref No OPS 6. Builds on Project 467 (Topic G1).
G01(93)2 475	Biomanipulation of eutrophic waters (EC LIFE) To develop a framework for the biomanipulation of aquatic habitats for the restoration of shallow eutrophic lakes and to evaluate appropriate	5/93 3/96	25		25						Part OI/part R&D G Phillips	Output - o. Part of EC LIFE (DGXI) programme led by Broads Authority, Supports Continuing Activity - Catchment
G01(94)10	restoration techniques	94/95 95/96	*35									A
												Management Plans. Total project £713k. Developed out of A(93)9 Prevention of pollution project.

COMMISSION G - CROSS FUNCTIONAL

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
G01(91)9 492	Development of public perception methodology To develop and carry out initial public perception surveys to assess public views on needs and performance	10/93 12/94		1							BMRB J Harper	Output - o & P. Customer - Public Relations Officers Group - Supports Developmental Initiative - Environment Agency- Liaison with Project 345 (Topic C3).
G01(91)3 509	Development of airborne remote sensing techniques To further develop data interpretation procedures for maximising the use of airborne remote sensing information to provide coastal sediment information for Flood Defence and a strategic overview capability for Conservation	2/94 7/95	100	47	10	15					In house/NERC N Holden	SW Output - e & o. Customer - Director of Water Management and Science. Supports Continuing Activity - National Centre on Coastal Monitoring. Collaboration with NERC.
G01(93)4 518	West Coast Directory To contribute to the promotion of integrated coastal zone management by providing a synthesis of existing information	2/94 3/96	2		2						JNCC L Pickles	HO Output - G. Supports Developmental Initiative - WLMP and CZMP.
G01(92)5 524	Review of databases To assess the availability and relevance of databases held by external organisations to NRA activities in order to improve NRA's efficiency and effectiveness	2/94 6/94	4								In-house N Pallister	SW Output - c & o. Customer - Director of Finance, via Head of System Development. Links with WAMS project and GIS study. Liaison with NERC and Government GIS. Supports Developmental Initiative - Environment Agency.
G01(95)5		95/96 95/96			*10							
G01(94)7 531	Catchment ecosystem R&D To examine the feasibility of undertaking a programme of research and/or development on man's impact on catchment ecosystems which is both of high scientific value and of significant practical value for enabling catchments to be managed on a sustainable basis; if affirmative, to produce detailed plans outlining the programme	5/94 1/95	14								Queen Mary & Westfield (London)	Output - f. Supports Continuing Activity - Catchment Management Planning. Collaborative project with NERC, ESRC, EN and JNCC. Peer review will be by a Steering Group comprising of collaborating bodies.
G01(95)4		95/96 95/96			*20						A Ferguson	A
G01(92)7 538	Expert systems for Financial Memorandum (FM) To produce a feasibility study on introducing an expert system to ensure consistent and accurate adherence throughout the NRA	8/94 3/95	18								PA Consulting M Rodden	HO Output - C. Customer - Director of Finance. Supports Developmental Initiative - Financial Policy and Procedures

COMMISSION G - CROSS FUNCTIONAL

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
G01(94)8 552	Constructed wetlands To assess the potential for the use of constructed wetlands for the treatment of industrial, domestic, agricultural and urban wastewater, including an assessment of their economic and environmental benefits and costs in order to influence policy on constructed wetlands	10/94 3/95	21	-	-	-	-	-	-	-	Acer M Everard	HO Output - p. Contribution to CIRIA programme - research on drainage systems and water quality, links to proposals A09(94)3 and A09(95)1. Total cost of constructed wetlands £85k.
G01(94)1 558	Environmental risk criteria To produce a discussion document on risk criteria for use by the European Commission as part of the development and application of risk management systems for the natural environment	12/94 3/95	12	-	-	-	-	-	-	-	AEA S Halfacree	W Output - O & p. Supports Developmental Initiative - Environment Agency. Follows on from DoE Toxic Substances Division framework. Customer - Director of Water Management and Science.
G01(94)9 572	Examination of benefit measures in contingent valuation To evaluate the use of "value of enjoyment" and "willingness to pay" in order to provide guidance on how such values can be used	1/95 3/95	5	-	-	-	-	-	-	-	University of Stirling M Postle	HO Output - o. Supports Developmental Initiative - Financial Awareness. Customer - Director of Finance.
Total on-going projects, including contingent budgets, G1			398	47	337	15	-	-	-	-		
C05(91)2	Proposed new starts G1 1994/95 River bank erosion protection To carry out field trials and monitoring of selected sites to improve understanding of management practice	94/95 94/95	4	-	-	-	-	-	-	-	University of Nottingham S Jeavons	A Output - g, o & o. Co-ordinate with other channel management projects via multi-functional steering group. Follows on from Project 258 (Topic C5). Supports Developmental Initiative - Flood Defence Manual. Collaborative project with BW.
G01(94)3	Barrages To assess the issues involved in barrage development to enable the NRA to respond to planning applications and in-house proposals Phase 1 - Review of external best practice	95/96 95/96	-	-	25	5	-	-	-	-	A Rees	W Output - O & f. Supports Developmental Initiative - Catchment Management Planning. Customer - Director of Water Management and Science. Possible collaboration with HR.
G01(94)6	River management framework To take the guiding principles outlined in the bank erosion report and apply them to a number of sites covering bank erosion, sediment transfer and various types of waterway	94/95 95/96	20	-	20	-	-	-	-	-	A Brookes	T Output - o. Supports Developmental Initiative - Flood Defence Manual. Customer - Director of Water Management and Science. Will cover botanical issues related to bank reinforcement.

COMMISSION G - CROSS FUNCTIONAL

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
G01(94)11	Autonomous technologies for buildings To produce a guide identifying opportunities for conserving resources, minimizing waste and preventing pollution associated with the use of buildings through the application of autonomous technologies	94/95 96/97	6	-	6	-	6	-			BSRIA D Howarth	Output - M. Supports Continuing Activity - Resource Planning (WR) and Pollution Prevention (WQ). Customer - Director of Water Management and Science.
G01(94)10	Estuary morphology and processes To investigate the possible lines of research and/or development towards the goal of developing techniques to predict large scale long term morphological changes and other sediment related impacts within estuaries and assess their consequences for estuarine management.	94/95 95/96	8	-	2	-					K Allison	Output - g. Supports Flood Defence Continuing Activity - Operational Management. Collaborative scoping study supported by MAFF, NERC, EPSRC and EN.
Total proposed new starts, G1 1994/95			38	0	78	5	31	0				
G01(95)2	Proposed new starts G1 1995/96 Environmental economics To study a range of cost benefit issues, and develop the techniques and methodologies required to support further development of an economics capability	95/96 97/98			150	-	40	-	40		M Postle	Output - O & p. Supports Developmental Initiative - Financial Awareness. Four proposals rolled together. Customer - Director of Finance.
G02(95)4	Community participation in catchment management plans To build on the R&D projects Best European Practice and public participation, in order to identify widening the ownership of the catchment planning process	95/96 95/96			25	-						Output - o. Supports Continuing Activity - Catchment Management Planning.
G01(95)3	Climate change impact assessments To formulate response options, through topic and function specific studies, to the key climate change impacts identified in R&D Report 12 in order to develop NRA policy	95/96 97/98			35	-	35	-	20		M Sitton	Output - U, o & g. Supports Developmental Initiative - Environment Agency Sustainable Development.
A02(95)1	Environmental indicators To investigate and develop environmental indicators to enable NRA/ENVAGE to measure its performance and environmental improvements	95/96 95/96			50	-						Output - p. Supports Developmental Initiative - Environment Agency Sustainable Development. Supports work of EAAC Monitoring Working Group. Must link with 4th Framework Programme and consider European Environment Agency.
Total proposed new starts, G1 1995/96					260	0	75	0	60	0		

COMMISSION G - CROSS FUNCTIONAL

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
	G2 - Planning Liaison To develop both existing and new approaches for assessing and influencing the impact and extent of development to prevent the creation or extension of flooding risks. To further develop the current understanding on the extent to which environmental processes may affect Planning Liaison										Topic Leader:	Hugh Howes, T Functional ownership of the proposals in this Topic area is still to be confirmed.
	On-going projects G2											
C03(91)1 426	Forward planning process - Best European Practice To study experiences in other EC member states and limited examples elsewhere with integrated flood plain land use and flood defence, taking into account the conservation and enhancement of the river environment	8/92 7/94	2	-							Middlesex University FHRC	Output - g & p. Supports Continuing Activity - Planning Liaison.
G02(95)5		95/96 95/96			*30	-					B Winter	T
	Total on-going projects, including contingent budgets, G2		2	0	30	0						
	Proposed new starts G2 1994/95											
C03(94)1	Developing new strategic instructions and guidelines To provide enhanced national guidance for influencing development in flood risk areas	95/96 96/97			20	-	40	-				Output - O. Supports Continuing Activity - Planning Liaison.
C03(94)2	Developers contribution to works To consider the economics of development in the flood plain and determine the extent of contributions from proposed developers for NRA schemes	95/96 96/97			10	-	20	-				Output - o & g. Supports Continuing Activity - Planning Liaison.
	Total proposed new starts, G2 1994/95				30	0	60	0				
	Proposed new starts G2 1995/96											
C03(93)1	Economic and environmental appraisal To develop economic tools for analysing the impact of catchment control in order to link economic appraisal to environmental assessment	95/96 97/98			20	-	30	-	20			Output - e & o. Supports Continuing Activity - Planning Liaison.
C03(93)2	Analysis of catchment control problems To analyze the failure in planning liaison to improve the development of the control in planning of flood defence activities	95/96 96/97			20	-	20	-			P Robinson	ST Output - o & g. Supports Continuing Activity - Planning Liaison.

COMMISSION G - CROSS FUNCTIONAL

PROPOSAL /PROJECT NUMBER	PROJECT TITLE OBJECTIVES	START END	PROJECT COSTS £k								CONTRACTOR PROJECT LEADER	COMMENTS
			1994/95		1995/96		1996/97		1997/98			
			Ext	Int	Ext	Int	Ext	Int	Ext	Int		
G02(95)1	Techniques for catchment management planning To explore areas of mutual interest including consideration of Agenda 21 and comparing techniques for producing catchment management plans in order to influence EU legislation	95/96 95/96			30	-					A Sitch	Output - p. Supports Continuing Activity - Planning Liaison. T Joint project with Agence de l'Eau.
G02(95)2	Implications of development within areas at risk from tidal flooding To investigate the extent to which areas at risk from tidal flooding are subject to pressures for development in order to develop a range of policy options	95/96 95/96			30	-						Output - p. Supports Continuing Activity - Planning Liaison.
G02(94)3	Surface water runoff from new developments and land use change To provide an accepted standard approach to runoff analysis in order to provide guidance to industry	94/95 94/95	7	-	1	-					CIRIA H Howes	Output - g. Scoping study undertaken in conjunction with SNIFFER. T Supports Continuing Activity - Planning Liaison. Links with C03(93)2.
G02(95)4	Catchment development and inter-sectoral co-ordination To establish a framework for presentation and implementation of environmental objectives to use in CMP in order to develop consistent guidelines for NRA staff.	95/96 95/96			20	-					C Woolhouse	Output - e. Support Continuing Activity - Catchment Management Planning. T
G02(94)1	Severn Estuary Strategy Partnership To ensure the NRA contributes as a partner, and benefits from the development of a strategic plan for the Severn Estuary	94/95 96/97	5	-	-	-					J Lambert	Output - g. Funded by Flood Defence function. NRA contributing to MAFF study. W
Total proposed new starts, G2 1995/96			5	0	130	0	50	0	20	0		
Commission G collection Total on-going projects, including contingent budgets			400	47	367	15	0	0	0	0		
Total proposed new starts 1994/95, including contingent budgets			38	0	108	5	91	0	0	0		
Total proposed new starts 1995/96, including contingent budgets			5	0	390	0	125	0	80	0		
TOTAL COMMISSION G, on-going and proposed new starts 1994/95 and 1995/96, including contingent budgets			443	47	865	20	216	0	80	0		

APPENDIX A - OTHER EXTERNAL R&D BUDGET EXPENDITURE

(a) Technical Services

NRA COST CENTRE	CONTRACTOR REF	TITLE	CONTRACT COSTS, £		CONTRACTOR	COMMENTS
			1994/95	1995/96		
028151	8.2a	Toxicology advisory and analysis service	45,000	45,000	WRc	Budget managed through TAPS Centre (S. Killeen)
028152	8.4a, 8.5a, 8.10a	Information and enquiry support service	68,000	68,000	WRc	Includes European intelligence
028153	8.6a	Sampling and statistics service	10,000	10,000	WRc	
028154	8.9a	Instrumentation support service	25,000	0	WRc	
028155		Wastewater treatment processes advisory service	15,000	15,000	WRc	Based at WRc Swindon
028251		Water Resources support service	10,000	10,000	IH	
028156		Institute of Freshwater Ecology - Technical Service	9,000	9,000	IFE	
028177		Freshwater biological support	9,000	9,000	FBA	Subscription and literature enquiries
028157		Seminars and general dissemination	90,000	40,000		
028158		Analytical quality control and method development	25,000	25,000	WRc	
028159		Aquatic Weeds Research Unit programme	63,000	63,000	AWRU	Collaborative funding with BW and IDBs
028160		Subscriptions to research associations	24,000	24,000	FWR, CIRIA, HR Ltd, TechWaRe	
Totals			393,000	318,000		

(b) R&D Management Support

ITEM	COSTS, £		COMMENTS
	1994/95	1995/96	
Regional R&D Co-ordinators	235,000	250,000	8 no FTE Band E
Additional contracted-in support	125,000	152,000	Budget provides for 3.5 no. equivalent FTE to support Topic Leaders, Project Leaders and R&D Co-ordinators having more than an equitable workload
Totals	360,000	402,000	

(c) R&D Fellowships

ITEM			COMMENTS
	1994/95	1995/96	
F1 Survey methodology for algae and other phototrophs in small rivers University of Durham	57,000	20,000	Further work may be carried out under contract rather than a Fellowship.
F5 Genetic structure of sea trout populations in England and Wales University of London	24,149	-	Extended to June 1996.
F6 Collaborative Fellowships			To be awarded in collaboration with NERC at designated Institutes in areas of national expertise.
F7 Individual CASE Studentships			To be allocated through NRA with 75% funding provided through Research Councils (NERC)
Totals	86,149	20,000	

APPENDIX B - LIST OF R&D PROJECTS STILL REQUIRING FORMAL SIGN OFF

COMMISSION A

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
N/A	037	A01	Development of microbial standards	WRc	Dave Lothian	Southern
A11(92)1	428	A02	Automatic exception reporting for trends in water quality	WRc	Dave Martin	Northumbria/Yorkshire
A10(90)4	240	A04	Bioaccumulation of Red List organic compounds	Northern Environmental Consultants	Colin Urquhart	Northumbria/Yorkshire
A15(90)1	471	A04	Development of quality control procedures for monitoring	Metocean Ltd	Simon Wills	Severn Trent
A05(91)4	349	A04	Validation of field procedures for algal toxin test kit	University of Dundee	Mick Pearson	Anglian
A12(92)2	494	A05	Method development	WRc	Roger Sweeting	Thames
A12(91)4	396	A05	Toxicity tests for poorly soluble substances (STEP)	WRc	Jim Wharfe	Southern
A07(91)3	485	A06	Survival of particular viruses in seawater	St Bartholomews	Carol Terry	Southern
A02(91)6	314	A07	Acid waters: Llyn Brienne	In-house	Neil Weatherley	Welsh
A02(90)4	270	A07	Impact of forest clearfelling on stream invertebrates	University of Aberystwyth	Simon Howard	Welsh
A10(90)2	450	A07	Impact of pesticides on river ecology	WRc	Ed Mycock	North West
A07(90)1	295	A08	Geochemical process modelling	British Geological Survey	Mark Grout	Anglian
A01(92)10	425	A09	Control of pollution from highway drainage systems	CIRIA	Gerard Morris	Northumbria/Yorkshire
A07(93)3	487	A09	Use of M13 bacteriophage for pollution tracing	University of Lancaster	Derek Chambers	North West

COMMISSION B

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
B04(91)1	306	B04	Bacterial denitrification in aquifers	British Geological Survey	Steve Fletcher	Severn Trent

COMMISSION C

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
C02(91)2	333	C01	Infiltration methods for runoff control	CIRIA	Terry Newman	South Western
C01(91)3	366	C01	Large scale model investigation of a two-stage channel	University of Bristol	David van Beesten	Thames
C05(91)4	363	C01	Pumping station efficiency - operation & life-cycle costs	Bullen & Partners	Alan Taylor	North West

COMMISSION C
continued

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
C01(92)1	407	C01	Review of fluvial R&D related to flood defence	Binnie & Partners	David Wilkes	Thames
C02(91)3	315	C02	Improved adaptive calibration technique for radar	University of Lancaster	Roger Goodhew	Severn Trent
C02(90)4	367	C02	Use of vertically pointed radar	University of Salford	Ian Pearse	North West
C08(91)2	403	C08	Wave input to west coast storm tide model	HR Wallingford	Geoffrey Noonan	North West

COMMISSION D

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
D01(92)2	438	D01	Genetic aspects of spring run salmon	University College, Cork	Peter Gough	Welsh
D02(91)1	429	D02	Coarse fish populations in large lowland rivers	HIFI	Richard Cresswell	Northumbria/Yorkshire
D02(90)2	229	D02	Disease status of fish as an indicator of water quality	In-house	Ian Hirst	Anglian
N/A	152	D02	River quality and fisheries status - Torridge	WRc	Stuart Bray	South Western
D03(93)3	511	D03	Effects of retention of fish in keepnets	IFE	Sandy Rowden	Head Office
D03(91)2	334	D03	Electric fishing of deep rivers	HIFI	Phil Hickley	Severn Trent
D03(90)2	250	D03	Hydroacoustic methods of fish survey	Royal Holloway & Bedford New College	Alan Butterworth	Thames
D03(92)3	440	D03	Survival and dispersal of stocked coarse fish	WRc	Steve Axford	Northumbria/Yorkshire

COMMISSION E

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
E01(91)2	336	E01	Bank erosion on navigable waterways	University of Nottingham	Andrew Brookes	Thames

COMMISSION F

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
F02(92)1	472	F02	Conservation in coastal areas	University of Wales, Cardiff	John Morgan	Southern
F02(92)3	461	F02	Species management in aquatic habitats	WRc/ITE	John Hogger	Northumbria/Yorkshire
F02(92)2	474	F02	Wetland conservation	ECUS	Lyn Jenkins	South Western

COMMISSION G

Proposal Number	Project Number	Topic	Title	Contractor	Project Leader	Region
G01(92)6	467	G01	Functional analysis of European wetland ecosystems	University of Exeter	Mark Everard	Head Office