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An audit of performance in the processing of macro-invertebrate samples in 1994. NRA South West Area of South Western Region

R.J.M. Gunn, BA N.J. Grieve, BSc J.H. Blackburn, BSc J.F. Wright, PhD

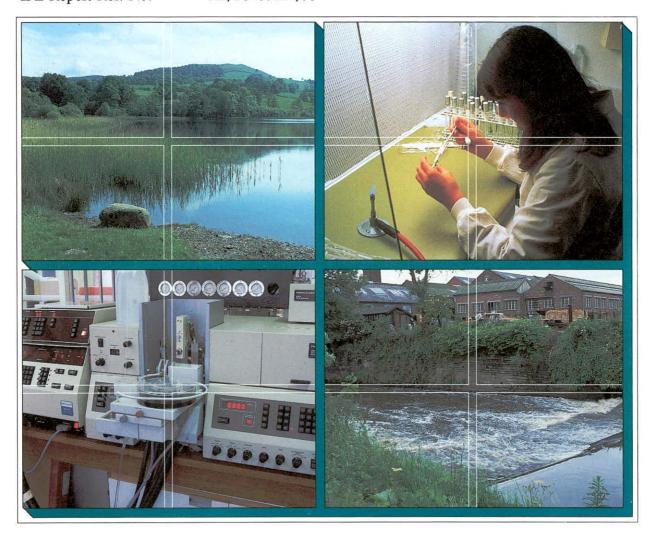
J.M. Winder, PhD K.L. Symes, HND

Report To:

National Rivers Authority, South Western Region

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River Laboratory East Stoke WAREHAM Dorset BH20 6BB

Tel: 0929 462314 Fax: 0929 462180

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R.J.M. Gunn; J.H. Blackburn; J.M. Winder; N.J. Grieve; J.F. Wright; K.L. Symes

Project Leader:

Report Date:

Report To:

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R.J.M. Gunn

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National Rivers Authority, South Western Region

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1. INTRODUCTION

In 1994 the sampling of aquatic macro-invertebrates for the biological assessment of river quality continued throughout the United Kingdom. This task was undertaken by the National Rivers Authority (NRA) in England and Wales, the River Purification Boards (RPBs) in Scotland and the Industrial Research & Technology Unit (IRTU) in Northern Ireland.

In view of the number of staff involved and the variability of sample processing techniques, it was recognised that an independent quality control exercise was necessary to promote a consistently high level of reliability. The IFE was contracted to undertake an audit of the sample sorting and identification performance of each NRA region, several RPBs and the IRTU. This report presents the results of 61 samples audited for South West Area of NRA South Western Region. The IFE was not required to perform any statistical analyses nor interpretation of the results of the audit.

Each organisation employed standard collection procedures, as used in the 1990 River Quality Survey, and the sampling strategy was therefore compatible with RIVPACS (River InVertebrate Prediction And Classification System), which has been developed by the Institute of Freshwater Ecology (IFE).

Samples were sorted by NRA, RPB and IRTU personnel for the families of macro-invertebrates included in the Biological Monitoring Working Party (BMWP) system. Taxa present were recorded on site data sheets. Sample processing and recording techniques varied from region to region.

2. SAMPLE SELECTION

Samples for audit were selected internally by each of the agencies being monitored. The biologists processing these samples had no prior knowledge of the samples to be audited.

The manner of sample selection, which biologists would be monitored and the number of audit samples from each season, were left to the discretion of the agency, within the limits of the total number of samples that IFE was contracted to audit.

3. SAMPLE PROCESSING

The normal protocol for NRA, RPB and IRTU biologists was to sort their samples within the laboratory and to select examples of each scoring taxon within the BMWP system. In most cases, the invertebrates were placed in a vial of preservative (4% formaldehyde solution or 70% industrial alcohol) and the BMWP taxa were listed on a data sheet. The vial of animals and the sorted material were then returned to the sample container and preservative added. Thus, each sample available to IFE for audit should have included:

- i) a list of the BMWP families found in the sample
- ii) a vial containing representatives from each family
- iii) the preserved sample

When these three elements were present, the sequence of operations at IFE was as follows:

- a) The remainder of the sample was sorted and the BMWP families listed
- b) The families contained within the vial were identified and listed
- c) A comparison was made between the NRA listing of families and those identified from the vial by IFE
- d) A comparison was made between the NRA listing of families and those found in the sample by IFE
- e) "Losses" or "gains" from the NRA listing of families were noted. In the case of "gains", each additional family was identified, where possible, to species level, in order to clarify any specific repetitive errors.

For a number of different reasons, some samples did not include a vial containing representative examples of the families listed on the data sheet. Others arrived with the vial damaged in transit such that the representative examples were no longer separated. For these samples, only operations a), d) and e) above were appropriate.

Several directives were issued to IFE relating to the treatment of BMWP taxa. Terrestrial representatives of BMWP scoring families, animals deemed to have been dead at the time of sampling, cast insect skins, pupal exuviae, empty mollusc shells and posterior ends of "living" specimens were to be excluded from the listing of families present. Chrysomelidae and Curculionidae, which appear in the BMWP list, were also to be excluded for the purposes of the audit. Trichopteran pupae, although not routinely identified by many biologists, were to be included in the listing of families.

4. REPORTING

The results of each sample audit were recorded on a standard report form (Table 1). For audit samples where a vial of animals was included, the comparison between the NRA listing and the taxa found in the vial by IFE was shown in box A of the report form. Discrepancies could be due to carelessness, misidentifications or errors in completing the NRA data sheet. Families not on the NRA listing but found by IFE in the remainder of the sample were entered in box B of the report form under "additional families". When the families listed as "losses" in section A of the report form were compared with the full list of families recorded in the sample by IFE, some apparent losses from the vial were offset by the presence of those families in the remainder of the sample. These taxa were therefore listed in the "losses" box of section A and the "gains" box of section B and were neither a net loss nor a net gain. In these cases, the families were marked with an asterisk in both boxes. Such errors are noted as "omissions" in the tables which summarise the results for each season (Tables 2, 3 and 4).

Species identifications, state of development (eg adult or larval coleopterans) and the presence of a single representative of a family within the remainder of the sample were recorded in the notes section of the report form. Where the NRA data sheet indicated that a family was noted and released at the site, this was recorded in the notes section but not included as a "loss", even though the family was not found in the vial.

For those samples in which the vial of animals was damaged or missing, box A of the report form was not applicable (N/a). Families not on the NRA list but present in the sample were listed in box B under "additional families" as before. Families recorded on the NRA list but not found by IFE were indicated on the left hand side of box B. If the vial of animals was retained by the NRA, entries in this box could include the sole representative of a family which was removed by the NRA, a family seen at the site which escaped or was released (without mention being made on the NRA data sheet), inaccurate identification, the wrong family box being ticked on the NRA data sheet or the family being present in the sample but missed by IFE.

Results of the audits of individual samples are presented in the Appendix.

REC	GION	RIVER						
1	DATE	SITE						
SOI	RTER	CODE						
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE					
В	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)	ADDITIONAL FAMILIES FOUND BY IFE					
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:							

TABLE 2. The 23 spring samples audited for South West Area.

River	Site	Sorter	Losses	Gains	Omissions
Marwood Stream	d/s Marwood STW	LB	0	0	0
Dalch	Barton Bridge	AA	0	4	0
Langham Lake Tributary	u/s Yarnscombe STW fence	AA	1	3	0
Little Dart Tributary	Rackenford	AA	0	2	0
Nadrid Water	Clapworthy	AA	0	0	0
Mole	u/s Footbridge	NB	0	1	0
Taw	East Rowden Bridge	NB	0	3	0
Taw Tributary	South Tawton STW	TAB	0	2	1
Tiddy	Tilland Mill Bridge	TAB	0	0	0
Venn Stream	Bishops Tawton	PG	0	3	0
Kitcott Lake	d/s Meshaw STW	PB	1	3	0
Fal	Tregony GS	KAD	0	2	0
Tamar	Gunnislake Bridge	SDT	0	1	0
Yealm	Yealm Bridge	TAB	0	0	0
Tamar	Dexbeer Bridge	KAD	0	, 0	0
Connon Stream	d/s Tip discharge	KAD	0	0	0
Penpont Water	Two Bridges	SDT	0	0	0
Withey Brook	u/s R. Lynher	KAD	0	0	0
Tamar	Polson Bridge	SDT	1	0	0
Meavy	u/s Burrator Reservoir	TAB	0	1	0
Claw	Tetcott Bridge	KAD	0	0	0
West Looe	Herodsfoot Bridge	TAB	0	0	0
Pont	Trethake Mill	TAB	0	2	0

TABLE 3. The 31 summer samples audited for South West Area.

River	Site	Sorter	Losses	Gains	Omissions
West Looe	Bosent Bridge	SDT	0	1	0
Connon Stream	Trevillis Wood	KAD	0	3	0
Fowey	Bodithiel Bridge	KAD	0	0	0
Tamar	Dexbeer Bridge	TAB	0	2	0
Tamar	Buses Bridge	KAD	0	1	0
St Neot	Colliford Bridge	KAD	0	0	0.
Tamar	Tamerton Bridge	SDT	0	0	0
Wolf	u/s R. Thrushel	SDT	0	0	0
Small Brook	Youldon Bridge	KAD	0	2	0
Newton Creek	Bridgend	SDT	4	0	1
Haye Valley Stream	Haye	SDT	1	1	0
Tamar	Boyton Bridge	KAD	0	1	2
Tamar	Polson Bridge	KAD	0	2	0
Claw	Clawton Bridge	KAD	0	1	0
Wolf	Roadford New Bridge	KAD	1	1	0
Latchley Brook	Latchley	TAB	<u> </u>	3	0
Hennard Stream	u/s Roadford Lake	SDT	0	0	0
Exe	d/s Rainbow Valley Fish Farm	AA	0	4	0
Shuttern Brook	d/s Morebath STW	AH	0	0	0
Dawlish Water	Burrows WTW	. AA	0	0	0
Exe	d/s Exe Valley Fisheries	AA	0	2	0
Culm	u/s Culmstock STW	AA	0	1	0
Withiel Brook	u/s Castle Hill Fish Farm	DO	0	1	0
Jackmoor Brook	Langford	PG	1	3	0
Weaver	d/s Kerswell STW	NB	0	1	0
Torridge	Woodford Bridge	AA	0	0	0

River	Site	Sorter	Losses	Gains	Omisions
Corry Brook	d/s Dalwood STW	AA	0	1	0
Otter	u/s Rawridge STW	AA	0	0	. 0
Coombe Raleigh Stream	d/s Coombe Raleigh STW	DO	0	3	0
Erme	Sequers Bridge	AA	0	1	0
Lim Tributary	u/s Uplyme STW	AA	0	2	0

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TABLE 4. The 7 autumn samples audited for South West Area

River	Site	Sorter	Losses	Gains	Omissions
Hennard Stream	u/s Roadford Lake	KAD	. 0	0	0
Otter	Tipton St John	NB	1	1	1
Otter	Fenny Bridges	DO	0	0	0 .
Taw	d/s Spires Lake	AA	0	1	0
Hayne Brook	d/s Manaton STW	AA	0 ·	0	0
Molland Yeo	Mornacott Moor	DO	0	3	0
Aller Brook Tributary	Coffinswell STW	AA	0	0	0

APPENDIX

Results of individual sample audits

REC	GION	South West	RIVER Marwood Stream		od Stream		
I	DATE	10.3.94	SITE	d/s Ma	arwood STW		
SOF	RTER	LB	CODE	NRA06	SW3003D/S		
A	i) F	VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found on VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i) E	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE None		
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:						

REG	GION	South West	RIVER	Dalch			
I	DATE	15.3.94	SITE	u/s M:	ill, Barton Bridge		
SOF	RTER	AA	CODE	NRA06	3017		
A	i) 1	VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found In VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE 1 Polycentropodidae		
В	i) 1 (ii) 1	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found In SAMPLE by IFE	EMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 2 Leuctridae 3 Leptoceridae 4 Lepidostomatidae		
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 4 OMISSIONS 0 NOTES: 1 Polycentropus flavomaculatus/kingi (juveniles) 2 Leuctra geniculata 1 only 3 Athripsodes sp. (juvenile) 1 only 4 Lepidostoma hirtum 1 only							

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REG	SION	South West	RIVER	Langh	am Lake Tributary			
Ι	ATE	11.3.94	SITE	u/s Ya	arnscombe STW fence			
SORTER AA CODE NRA06 SW3007U/S					sw3007U/s			
A	i) F	VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE	BMWP FAMILIES FOUND BY IFE 1 Gyrinidae		ADDITIONAL FAMILIES FOUND BY IFE None			
В	i) E	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 2 Leuctridae 3 Hydrophilidae 4 Simuliidae			
in NO	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 3 OMISSIONS 0 NOTES: 2 Leuctra nigra 1 only 3 Helophorus flavipes/obscurus (adult) 1 only 4 Simulium cryophilum gp/vernum gp (juvenile) 1 only							

The strength contribution of the profit of the contribution of the strength of the strength of

REC	SION	South West	RIVER	Littl	e Dart Tributary			
I	DATE	15.3.94	SITE	đ/s D	ischarge, Rackenford			
SOF	RTER	AA	CODE	NRA06	SW3012D/S			
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE			
			None		None			
В	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 1 Hydrophilidae 2 Lepidostomatidae			
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Limnebius truncatellus (adult), Indet Hydrophilid (larva) 2 Crunoecia irrorata 1 only							

Comprehensive Angeles (1999) (1999) Comprehensive Comprehe

REG	HOI	South West	RIVER	Nadrio	d Water			
I	DATE	27.4.94	SITE	Clapwo	orthy			
SORTER AA CODE NRA06 3069				3069				
A	VIAL		BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None			
	i) F	Differences between: i) BMWP families listed on sample data sheet and i) BMWP families found in VIAL by IFE		NOME				
В		SAMPLE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE			
	i) E	erences between: MWP families listed on sample data sheet and MWP families found n SAMPLE by IFE	(This box is onl completed when vial is supplie with the sample	no d	None			
	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)							
ио	TES:	NET LOS	SSES 0 NET GA	INS 0	OMISSIONS 0			

and the month of the state of t

REC	GION	South West	RIVER	Mole			
I	DATE	26.4.94	SITE	u/s Fo	ootbridge		
SOE	RTER	NB	CODE	NRA06	3075		
A	i) 1 (ii) 1	VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i) 1 (ii) 1	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFF (This box is onloompleted when vial is supplied with the sample)	Y no ed	ADDITIONAL FAMILIES FOUND BY IFE 1 Chloroperlidae		
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Chloroperla torrentium 1 only							

REC	ROIE	South West	RIVER	Taw			
1	DATE	15.3.94	SITE	East)	Rowden Bridge		
sor	RTER	NB	CODE	NRA06	3013		
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		None		1 Ephemerellidae		
в		······································	BMWP FAMILIES	NOT	ADDITIONAL FAMILIES		
	i) E	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	(This box is onl completed when vial is supplie with the sample	y no d	FOUND BY IFE 2 Ancylidae 3 Leptoceridae		
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)							
МО	TES:	NET LOS	SSES 0 NET GA	INS 3	OMISSIONS 0		
	1 Ephemerella ignita 2 Ancylus fluviatilis 1 only 3 Adicella reducta, Oecetis testacea						

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RE	GION	South West	RIVER	Taw T	ributary		
1	DATE	18.4.94	. SITE	South	Tawton STW		
SO	RTER	тв	CODE	NRA06	SW3025		
					•		
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) E ii) P	erences between: MWP families listed on sample data sheet and MWP families found n VIAL by IFE	1 Hydrophilidae*		None		
-							
В	i) B o ii) B	SAMPLE erences between: MWP families listed n sample data sheet and MWP families found n SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	Y no d	ADDITIONAL FAMILIES FOUND BY IFE 2 Leptophlebiidae 3 Nemouridae 4 Hydrophilidae*		
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)							
NC	TES:	NET LOS	SES 0 NET GA	INS 2	OMISSIONS 1		
	1,4 Terrestrial species in vial, Anacaena globulus (adult) 1 only in vial 2 Habrophlebia fusca 1 only 3 Amphinemura standfussi						

REG	ION	South West	RIVER	Tiddy		
D	ATE	15.3.94	SITE	Tilla	nd Mill Bridge	
sor	TER	TAB	CODE	NRA06	12141	
A	i) E	VIAL Eerences between: MWP families listed on sample data sheet and MWP families found on VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) E c	SAMPLE erences between: MWP families listed in sample data sheet and MWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	Y no d	ADDITIONAL FAMILIES FOUND BY IFE None	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

REC	GION	South West	RIVER	Venn	Stream
1	DATE	21.4.94	SITE	Bisho	ps Tawton
			1		
SOI	RTER	PG	CODE	NRA06	3076
A		VIAL	BMWP FAMILIES FOUND BY IF		ADDITIONAL FAMILIES FOUND BY IFE
	i) 1 (ii) 1	Eerences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None		None
ا ٦	· (
В	<u> </u>	SAMPLE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE
	nie	erences between:	(This box is only completed when no		1 Caenidae 2 Hydrophilidae
ĺ	i) I	NWP families listed			3 Hydrophilidae
		on sample data sheet and	vial is supplie with the sample		
		MWP families found n SAMPLE by IFE			
	_				
Į					
* in	Taxa Lamp	recorded on data sheele (omissions)	et but absent fro	m vial	and found by I.F.E.
		NET LOS	sses 0 Net GA	INS 3	OMISSIONS 0
NO	TES:		, 525		omissions 0
	1 Caenis rivulorum 1 only				
2 Hydraena gracilis (adulta 3 Hydroptila sp. 1 only			(s)		
		<u> </u>			
					·

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REGION South West		South West	RIVER	Kitco	tt Lake	
Γ	DATE	6.4.94	SITE	d/s M	eshaw STW	
SOR	RTER	PB	CODE	NRA06	3018D/S	
A	i) E	VIAL erences between: MWP families listed on sample data sheet and MWP families found n VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE 2 Lepidostomatidae	
В	i) B o ii) B	SAMPLE erences between: MWP families listed n sample data sheet and MWP families found n SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 3 Lymnaeidae 4 Polycentropodidae	
in NO	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 3 OMISSIONS 0 NOTES: 1 Small grey slug in vial 2 Crunoecia irrorata 3 Lymnaea truncatula 1 only 4 Plectrocnemia sp. (juvenile) 1 only					

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RE	GION	South West	RIVER	Fal			
1	DATE	1.3.94	SITE	Trego	ny GS		
soi	RTER	KAD	CODE	NRA06	1924		
A	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE			ADDITIONAL FAMILIES FOUND BY IFE None			
В	i) E c ii) E	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 1 Elmidae 2 Rhyacophilidae		
	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Elmis aenea (adult + larva) 2 Agapetus sp. 1 only						

REC	JION	South West	RIVER	Tamar			
1	DATE	17.3.94	SITE	Gunni	slake Bridge		
SOI	RTER	SDT ·	CODE	NRA06	1288		
A	i) 1 (ii) 1	VIAL Ferences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i) I (ii) I	SAMPLE Ferences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 1 Dryopidae		
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Helichus substriatus (larva) 1 only						

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REC	CION	South West	RIVER	Yealm					
1	DATE	2.3.94	SITE	Yealm	Bridge				
SOI	RTER	TAB	CODE	NRA06	1002				
A	VIAL		BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE				
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		None		None				
В	SAMPLE Differences between: i) BMWP families listed on sample data sheet and		EMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None				
	_	BMWP families found in SAMPLE by IFE							
	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)								
NC	TES:	NET LOS	SSES 0 NET GA	.ins 0	OMISSIONS 0				

RE	GION	South West	RIVER	Tamar				
1	DATE	4.3.94	SITE	Dexbee	r Bridge			
so	RTER	KAD	CODE	NRA06	1247			
A	i) I (ii) I	VIAL Ferences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None			
В	i) E ii) E	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	FOUND BY IFE (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE None			
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:							

REC	GION	South West	RIVER	Connor	Stream	
1	DATE	3.3.94	SITE	d/s Ti	p Discharge	
SOI	RTER	KAD	CODE	NRA06	1408	
A	i) I (ii) I	VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found In VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE None	
2	i) F ii) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

Committee and the second section of the second second section of the second second second second second second

REG	CION	South West	RIVER	Penpo	nt Water		
Ι	ATE	2.3.94	SITE	Two B	ridges		
SORTER SDT		SDT	CODE	NRA06	1266		
A	i) F	VIAL Eerences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE	ces between: families listed mple data sheet and families found		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i) E	SAMPLE erences between: MWP families listed in sample data sheet and MWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None		
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:						

A comparison with the property of the state of the property of the property of the state of the

REC	GION	South West	RIVER	Withe	y Brook	
1	DATE	15.3.94	SITE	u/s R	.Lynher	
sor	RTER	KAD	CODE NRA06		1272	
A	VIAL Differences between: i) BMWP families listed		BMWP FAMILIES NOT FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None	
	ii) I	on sample data sheet and SMWP families found In VIAL by IFE			·	
В	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

REG	HON	South West	RIVER	Tamar			
I	ATE	14.4.94	SITE	Polso	n Bridge		
SOF	RTER	SDT	CODE	NRA06	12106		
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		BMWP FAMILIES NOT FOUND BY IFE 1 Limnephilidae		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i) E	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None		
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 0 OMISSIONS 0 NOTES:						

REGION		South West	RIVER	Meavy		
I	DATE	17.3.94	SITE	u/s Bi	urrator Reservoir	
SORTER		TAB	CODE	NRA06	1114	
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		BMWP FAMILIES NOT FOUND BY IFE None		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) E	SAMPLE serences between: MWP families listed on sample data sheet and MWP families found on SAMPLE by IFE	eet vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 1 Taeniopterygidae	
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES:						

Strate on the state of the stat

REC	SION South West	RIVER	Claw			
Ī	DATE 3.3.94	SITE	Tetcot	tt Bridge		
SOI	RTER KAD	CODE	NRA06	1242		
_						
A	VIAL	BMWP FAMILIES NOT FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	None		None ·		
В	CAMDIE	BMWP FAMILIES NOT FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box is only completed when no vial is supplied with the sample)		None		
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)						
NET LOSSES 0 NET GAINS 0 OMISSIONS 0						
Table 1						

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REGI	гои	South West	RIVER	West 1	Looe	
DA	ATE	3.3.94	SITE	Herod	sfoot Bridge	
SORI	rer	TAB	CODE	NRA06 1417		
	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		BMWP FAMILIES NOT FOUND BY IFE None		ADDITIONAL FAMILIES FOUND BY IFE None	
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None			
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:						

REG	NOI	South West	RIVER	Pont		
Ι	ATE	11.3.94	SITE	Tretha	ake Mill	
SORTER		TAB	CODE	NRA06	1501	
A	VIAL		BMWP FAMILIES NOT FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE	
	i) :	Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None	,	None	
В	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		BMWP FAMILIES NOT FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE	
			(This box is only completed when no vial is supplied with the sample)		1 Hydrophilidae 2 Scirtidae	
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES:						
	1 Hydraena gracilis, H.riparia (adults) 2 Elodes sp. (larva) 1 only					

The second secon

REGION South West		South West	RIVER West		Looe		
I	DATE	9.6.94	SITE	Bosen	t Bridge		
SOI	RTER	SDT	CODE	NRA06	1404		
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE			None			
ا 1							
В		GAMPI E	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) E	SAMPLE erences between: MWP families listed on sample data sheet and MWP families found n SAMPLE by IFE	(This box is only completed when no vial is supplied with the sample)		1 Gammaridae		
		recorded on data shee le (omissions)	t but absent fro	m vial	and found by I.F.E.		
МО	NET LOSSES 0 NET GAINS 1 OMISSIONS 0						
	1 Gammarus pulex 1 only						

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REGION South West		South West	RIVER	Connon Stream			
DATE 23.6.94		23.6.94	SITE	Trevillis Wood			
SOR	TER	KAD	CODE	NRA06 1409			
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		BMWP FAMILIES FOUND BY IFF				
В	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	found by IFE 1 Planariidae 2 Lymnaeidae no 3 Dytiscidae ed			
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 0 NOTES: 1 Polycelis felina 2 Lymnaea sp. (without shell) 1 only 3 Stictotarsus duodecimpustulatus (larva) 1 only						

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REGION South West		South West	RIVER	Fowey			
1	DATE	20.6.94	SITE	Bodit	hiel Bridge		
soi	RTER	KAD	CODE	NRA06	1515		
A	-	VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE			None			
В			BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) E c ii) E	SAMPLE serences between: MWP families listed on sample data sheet and MWP families found on SAMPLE by IFE	(This box is onl completed when vial is supplie with the sample	no d	None		
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:						

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RE	GION	South West	RIVER	Tamar			
1	DATE	29.6.94	SITE	Dexbe	er Bridge		
SOI	RTER	TAB	CODE	NRA06	1247		
_							
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		None		None		
В		CAMDI P	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		(This box is only completed when no vial is supplied with the sample)		1 Planorbidae 2 Calopterygidae		
* in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)						
NC	TES:	NET LOS	SSES 0 NET GA	INS 2	OMISSIONS 0		
	1 Gyraulus albus 1 only 2 Calopteryx splendens 1 only						
		•	·				

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RE	GION	South West	RIVER	Tamar				
1	DATE	29.6.94	SITE	Buses	Bridge			
SOI	RTER	KAD	CODE	NRA06	12111			
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE			
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		None		None			
В	BMWP FAMILIES NOT FOUND BY IFE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 1 Leptoceridae					
	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES:							
		ripsodes bilineatus 1	only					

The property set of the first of the second

REGION South West		South West	RIVER	St.Neot			
1	DATE	14.6.94	SITE	Colli	ford Bridge		
soi	RTER	KAD	CODE	NRA06	1517		
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) 1 (ii) 1	Ferences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE	None		None		
В	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None		
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:						

REG	SION	South West	RIVER	Tamar			
Ι	ATE	13.7.94	SITE	Tamer	ton Bridge		
SOF	TER	SDT	CODE	NRA06	1249		
A	i) F	VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found In VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	y no id	ADDITIONAL FAMILIES FOUND BY IFE None		
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:						

REGION South West		South West	RIVER	Wolf		· · · · · · · · · · · · · · · · · · ·
I	ATE	27.7.94	SITE	u/s R	.Thrushel	
SOF	RTER	SDT	CODE	NRA06	1234	
A	VIAL		FOUND BY IFE	BMWP FAMILIES NOT FOUND BY IFE		FAMILIES TIFE
	i) I	Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None		None	,
, 				1	1	.
В	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		TOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FOUND BY None	
				:		
		recorded on data sheeple (omissions)	et but absent fro	om vial	and found by	I.F.E.
N	TES:	NET LO	SSES 0 NET GA	AINS	O OMISSIONS	0
			·			, Part

REG	SION	South West	RIVER	Small	Brook		
Γ	ATE	29.6.94	SITE	Youldo	on Bridge		
SOF	RTER	KAD	CODE	NRA06	1254		
A	i) 1	VIAL ferences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IF		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i) :	SAMPLE Eerences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFF (This box is on: completed when vial is supplie with the sample	ly no	ADDITIONAL FAMILIES FOUND BY IFE 1 Ephemerellidae 2 Elmidae		
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Ephemerella ignita 1 only 2 Oulimnius sp. (larva) 1 only						

REGION	South West	RIVER	Newton	ı Creek		
DATE	2.8.94	SITE (Bridge	nd		
SORTER	SDT	CODE	NRA06	1017		
i) i	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES NOT FOUND BY IFE 1 Baetidae 2 Ephemeridae 3 Dytiscidae 4 Hydrophilidae 5 Tipulidae*		ADDITIONAL FAMILIES FOUND BY IFE None		
i) :	SAMPLE Ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	y no	ADDITIONAL FAMILIES FOUND BY IFE 6 Tipulidae*		
NOTES: 1 Abanim 2 La 3 Em 4 Sp was	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 4 NET GAINS 0 OMISSIONS 1 NOTES: 1 Abdomen only. IFE instructed not to include posterior ends of animals in the audit 2 Last 4 abdominal segments only 3 Empty larval skin in vial 4 Specimen of Octhebius dilatatus considered dead at time that sample was taken 6 Dicranota sp.					

REGION		South West	RIVER	Haye \	/alley Stream		
I	DATE 19.8.94 SITE Haye						
SOF	RTER	SDT	CODE	NRA06	12139		
A	i) :	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE 1 Oligochaeta		ADDITIONAL FAMILIES FOUND BY IFE None		
В	i)	SAMPLE ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFF (This box is onl completed when vial is supplied with the sample)	Ly no	ADDITIONAL FAMILIES FOUND BY IFE 2 Limnephilidae		
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 1 OMISSIONS 0 NOTES: 1 Nematode in vial 2 Indet Limnephilid (juvenile) 1 only						

REG	SION South West	RIVER	Tamar				
I	DATE 13.7.94	SITE	Boyton	Bridge			
SOF	RTER KAD	CODE	NRA06	12104			
A	VIAL Differences between: i) BMWP families liste on sample data shee and ii) BMWP families found in VIAL by IFE	E	Ξ ,	ADDITIONAL FAMILIES FOUND BY IFE None			
В	SAMPLE Differences between: i) BMWP families liste on sample data shee and ii) BMWP families found in SAMPLE by IFE	vial is suppli- with the sampl	ly no ed	ADDITIONAL FAMILIES FOUND BY IFE 3 Unionidae 4 Sphaeriidae* 5 Hydrophilidae*			
i	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 2 NOTES: 3 Anodonta sp. (juvenile) 1 only 4 Pisidium sp. 5 Hydraena gracilis (adults)						

GION	South West	RIVER	RIVER Tamar	
DATE	14.7.94	SITE	Polson	n Bridge
RTER	KAD	CODE	NRA06	12106
	VIAL			ADDITIONAL FAMILIES FOUND BY IFE
i) 1 (ii) 1	BMWP families listed on sample data sheet and BMWP families found	None		None
	SAMPLE			ADDITIONAL FAMILIES FOUND BY IFE
i) 1 (ii) 1	ferences between: BMWP families listed on sample data sheet and BMWP families found	completed when vial is supplied	no ed	1 Planariidae 2 Hydroptilidae
		et but absent fro	om vial	and found by I.F.E.
OTES:	NET LOS	SSES 0 NET GA	AINS :	2 OMISSIONS 0
1 Po				
	Diffi i) I ii) I iii) I Taxa n samp	VIAL Differences between: i) BMWP families listed on sample data sheet and in VIAL by IFE SAMPLE Differences between: i) BMWP families found in VIAL by IFE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE Taxa recorded on data sheet sample (omissions)	DATE 14.7.94 SITE REFER KAD CODE VIAL Differences between: i) BMWP families listed on sample data sheet and in VIAL by IFE Differences between: i) BMWP families found in VIAL by IFE Completed when vial is supplied with the sample with the sample with the sample with the sample on sample (omissions) NET LOSSES 0 NET GOTES:	VIAL Differences between: i) EMWP families listed on sample data sheet and in VIAL by IFE Differences between: i) EMWP families found in VIAL by IFE Differences between: i) EMWP families listed on sample data sheet and in SAMPLE Differences between: i) EMWP families listed on sample data sheet and in SAMPLE by IFE Taxa recorded on data sheet but absent from vial in sample (omissions) NET LOSSES 0 NET GAINS TES:

REG	ION	South West	RIVER	Claw	
I	ATE	29.6.94	SITE	Clawto	on Bridge
SOR	TER	KAD	CODE	NRA06	12108
A	i) 1	VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE None
В	i) :	SAMPLE ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFF (This box is onloompleted when vial is supplied with the sample)	Ly no ed	ADDITIONAL FAMILIES FOUND BY IFE 1 Sphaeriidae
ir	res:	recorded on data sheeple (omissions) NET LOS sidium sp.			and found by I.F.E. OMISSIONS 0

REC	SION	South West	RIVER	Wolf		
I	DATE	14.7.94	SITE	Roadfo	ord New Bridge	
SOF	RTER	KAD	CODE	NRA06	1298	
A	i) 1	VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) :	SAMPLE ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFF (This box is onlowed when vial is supplied with the sample)	Ly no	ADDITIONAL FAMILIES FOUND BY IFE 2 Calopterygidae	
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 1 OMISSIONS 0 NOTES: 2 Calopteryx splendens 1 only					

REC	HOI	South West	RIVER	Latch	ley Brook		
r	DATE	24.8.94	SITE	Latchl	еу		
SOF	RTER	TAB	CODE	NRA06	1217		
A	VIAL		BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) 1 (ii) 1	Terences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None	. ,	None		
В			BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES		
	i) 1 (ii) 1	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	(This box is onlow completed when vial is supplied with the sample)	y no ed	FOUND BY IFE 1 Sphaeriidae 2 Cordulegasteridae 3 Lepidostomatidae		
	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 0						
	2 Co	sidium sp. 1 only rdulegaster boltonii i moecia irrorata 1 oni					

REGION	South West	RIVER	Hennard Stream			
DATE	14.7.94	SITE	u/s Ro	oadford Lake		
SORTER	SDT	CODE	NRA06	12142		
i)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None		
i)	SAMPLE ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None		
in sar	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

REC	SION	South West	RIVER	Ехе		
I	DATE	23.8.94	SITE	d/s Ra	inbow Valley Fish Farm	
SOF	RTER	AA	CODE	05E FF	0511	
A	i) I	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) I (ii) I	SAMPLE Ferences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 1 Planariidae 2 Asellidae 3 Nemouridae 4 Hydrophilidae	
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 4 OMISSIONS 0 NOTES: 1 Polycelis felina 1 only 2 Asellus aquaticus 1 only 3 Protonemura sp. 1 only 4 Hydraena gracilis (adult) 1 only					

REG	HON	South West	RIVER	Shutte	ern Brook	
r	ATE	12.8.94	SITE	d/s Mo	orebath STW	
SOF	RTER	АН	CODE	05F SV	W0516	
A	i) I (ii) I	VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found on VIAL by IFE	BMWP FAMILIES FOUND BY IFE	-	ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

			_		
REC	SION	South West	RIVER	Dawli	sh Water
I	DATE	8.8.94	SITE	u/s Bı	irrows WTW
SORTER AA		AA	CODE	05A W	r0502
A	i)	VIAL Eerences between: OMWP families listed on sample data sheet and OMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE None
В	i)	SAMPLE Ferences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFF (This box is onlongleted when vial is supplied with the sample)	ly no ed	ADDITIONAL FAMILIES FOUND BY IFE None
in		recorded on data shee ole (omissions) NET LOS			

REC	GION	South West	RIVER	Exe		
I	OATE	19.8.94	SITE	đ/s E	xe Valley Fisheries	
SOI	RTER	AA	CODE	05E F	F0509	
A	i) 1 (ii) 1	VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i)	SAMPLE Eerences between: BMWP families listed on sample data sheet and BMWP families found In SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplied with the sample)	y no	ADDITIONAL FAMILIES FOUND BY IFE 1 Glossiphoniidae 2 Polycentropodidae	
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Helobdella stagnalis 1 only 2 Note on data sheet under heading of Other Taxa "Polycentropodidae head?". One anterior end of Polycentropus sp. found by IFE in sample.					

REC	GION	South West	RIVER	Culm	
I	DATE	10.8.94	SITE	u/s C	ulmstock STW
SOF	RTER	АА	CODE	05C ST	W0512
A	VIAL		BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE
	i) 1	Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None		None
			1	······································	· · · · · · · · · · · · · · · · · · ·
B			BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE
	i) 1 (ii) 1	SAMPLE Ferences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	(This box is onl completed when vial is supplie with the sample	y no	1 Sphaeriidae
		recorded on data shee le (omissions)	et but absent fro	m vial	and found by I.F.E.
NO	TES:	NET LOS	SSES 0 NET GA	INS 1	OMISSIONS 0
Г		aerium sp.			

RE	GION South West	RIVER Withi	lel Brook
1	DATE 12.8.94	SITE u/s (Castle Hill Fish Farm
SOI	RTER DO	CODE 05G E	FF0515
П		II.	
A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families liste on sample data shee and ii) BMWP families found in VIAL by IFE	t l	None
В		BMWP FAMILIES NOT	ADDITIONAL FAMILIES
۳	SAMPLE	FOUND BY IFE	FOUND BY IFE
	Differences between: i) BMWP families liste on sample data shee and ii) BMWP families found in SAMPLE by IFE	vial is supplied with the sample)	1 Planariidae
	Taxa recorded on data son sample (omissions)	neet but absent from vial	and found by I.F.E.
	_	LOSSES 0 NET GAINS	1 OMISSIONS 0
	1 Polycelis nigra/tenui	s 1 only	

REGION South West		South West	RIVER	Jackmo	oor Brook		
D	ATE	9.8.94	SITE	Langfo	ord		
SOR	TER	PG	CODE	NRA06	0596		
A	VIAL		BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) F	Serences between: BMWP families listed on sample data sheet and BMWP families found on VIAL by IFE	1 Lymnaeidae		None		
B	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		y no	ADDITIONAL FAMILIES FOUND BY IFE 2 Asellidae 3 Hydrometridae 4 Gyrinidae			
in NOT	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 3 OMISSIONS 0 NOTES: 1 Succinea sp. in vial 2 Asellus meridianus 1 only 3 Hydrometra stagnorum (nymphs) 4 Orectochilus villosus (adult) 1 only						

	Weaver				
SITE	đ/s Ke	erswell STW			
CODE	05C SV	₩0502			
		ADDITIONAL FAMILIES FOUND BY IFE None			
BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 1 Hydrophilidae			
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Anacaena globulus (adult) 1 only					
	CODE SMWP FAMILIES FOUND BY IFF Sis box is onl mpleted when al is supplied th the sample ut absent from	CODE 05C STANDED TO STAND BY IFE TO STAND BY INC. TO STAND BY I			

REG	HOI	ON South West RIVER Torridge		lge		
I	ATE	7.7.94	SITE	Woodfo	ord Bridge	
SOF	RTER	AA	CODE	NRA06	2916	
A	i) i	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) 1	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

REG	SION	South West RIVER Corry		Corry	Brook	
Γ	DATE	4.7.94	SITE	d/s Da	alwood STW	
SOR	RTER	AA	CODE	NRA06	SW0204	
A	i) 1 (ii) 1	VIAL Eerences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 1 Gammaridae	
in No	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Gammarus pulex, Crangonyx pseudogracilis					

RE	REGION South West RIVER Otter					
3	DATE	14.7.94	SITE	u/s Ra	awridge STW	
SOI	RTER	AA	CODE	NRA06	PW0405	
A	i) 1 (ii) 1	VIAL Ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) I (ii) I	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None	
ir	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

RE	GION	South West	RIVER	Coomb	e Raleigh Stream	
1	DATE	20.7.94	SITE	đ/s C	combe Raleigh STW	
SOI	RTER	DO	CODE	NRA06	SW0404	
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE	
	i) 1 (ii) 1	Ferences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE	None		1 Hydrometridae	
в			BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE	
	i) I	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	(This box is only completed when no vial is supplied with the sample)		2 Planariidae 3 Leptophlebiidae	
	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 0					
NC	2 Pol	drometra sp. (nymph) ycelis sp. 1 only orophlebia fusca	· .			

REGIO	N South West	RIVER	Erme		
DAT	E 16.8.94	SITE	Sequers Bri	đge	
SORTE	R AA	CODE	NRA06 0903		
i	VIAL ifferences between:) BMWP families listed on sample data sheet and) BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ITIONAL FAMILIES FOUND BY IFE	
i	SAMPLE ifferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplied with the sample)	1 B	ITIONAL FAMILIES FOUND BY IFE eraeidae	
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 1 OMISSIONS 0 NOTES: 1 Beraea maurus 1 only					

REC	SION	South West	RIVER	Lim T	ributary	
I	DATE	12.7.94	SITE	ս/s Ծլ	olyme STW	
SOF	RTER	AA	CODE	NRA06	SW0101	
A	i) F	VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) E	SAMPLE erences between: MWP families listed in sample data sheet and MWP families found in SAMPLE by IFE	BMWP FAMILIES FOUND BY IFE (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 1 Baetidae 2 Tipulidae	
in NO	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 2 OMISSIONS 0 NOTES: 1 Baetis muticus 1 only 2 Tipula sp. (juvenile), Scleroprocta sp.					

REC	GION	South West	RIVER	Hennard Stream			
I	DATE	29.11.94	SITE	u/s Ro	oadford Lake		
SOF	RTER	KAD	CODE	NRA06	12142		
A		VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) I	Terences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE	None		None		
В			BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE		
	i) F (ii) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	(This box is only completed when no vial is supplied with the sample)		None		
	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)						
NO	TES:	NET LOS	SSES 0 NET GA	INS 0	O OMISSIONS 0		

REC	EGION South West RIVER Otter					
I	DATE	13.10.94	SITE	Tipto	n St.John	
SOF	RTER	NB	CODE	NRA06	0405	
A	i) I	VIAL Eerences between: SMWP families listed on sample data sheet and SMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF 1 Hydrophilidae 2 Hydroptilidae	e*	ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE 3 Dytiscidae 4 Hydrophilidae*	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 1 OMISSIONS 1 NOTES: 2 Empty cases only in sample 3 Oreodytes sanmarkii (adult) 1 only 4 Hydraena gracilis (adults)					

REC	GION	South West	RIVER	Otter		
I	DATE	12.10.94	SITE	Fenny	Bridges	
SOF	RTER	ро .	CODE	NRA06	0414	
A	i) 1 (ii) 1	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFI		ADDITIONAL FAMILIES FOUND BY IFE None	
В	i) I ii) I	SAMPLE Erences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

REC	GION	South West	RIVER	Taw		
I	DATE	28.9.94	SITE	d/s S	pires Lake confluence	
SOI	RTER	AA	CODE	NRA06	3078	
			•	·		
A		VIAL	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE	
	i) I	erences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE	None		None	
ا ٦			1		1	
믜			BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE	
	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	(This box is only completed when no vial is supplied with the sample)		1 Gyrinidae	
		recorded on data sheele (omissions)	et but absent fro	om vial	and found by I.F.E.	
NC	TES:	NET LOS	SSES 0 NET GA	INS	OMISSIONS 0	
	1 Orectochilus villosus (larva) 1 only					

REG	HON	South West	RIVER	Hayne	Brook	
D	ATE	2.9.94	SITE	đ/s Ma	anaton STW	
SOR	RTER	AA	CODE	NRA06	sw0604	
A	i) F	VIAL Serences between: SMWP families listed on sample data sheet and SMWP families found on VIAL by IFE	BMWF FAMILIES FOUND BY IFE	·	ADDITIONAL FAMILIES FOUND BY IFE None	
B .	i) E c ii) E	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found on SAMPLE by IFE	BMWP FAMILIES NOT FOUND BY IFE (This box is only completed when no vial is supplied with the sample)		ADDITIONAL FAMILIES FOUND BY IFE None	
in	* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:					

REC	GION	South West	RIVER	Molla	ad Yeo				
3	DATE	29.9.94	SITE	Mornac	cott Moor				
] i						
SORTER DO		DO	CODE NRA06		3063				
A	VIAL Differences between:		BMWP FAMILIES NOT FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE None				
	ii) I	BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE							
В			BMWP FAMILIES NOT FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE				
	i) F	SAMPLE Serences between: SMWP families listed on sample data sheet and SMWP families found in SAMPLE by IFE	(This box is onl completed when vial is supplie with the sample	no d	1 Caenidae 2 Odontoceridae 3 Leptoceridae				
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 3 OMISSIONS 0 NOTES:									
1 Caenis rivulorum 2 Odontocerum albicorne 1 only 3 Athripsodes albifrons									

REG	SION	South West	RIVER	Aller	Brook Tributary				
Ι	ATE	8.9.94	SITE	Track	at Coffinswell STW				
SORTER		AA	CODE NRA06		SW0602				
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		BMWP FAMILIES NOT FOUND BY IFE None		ADDITIONAL FAMILIES FOUND BY IFE None				
В	i) 1	SAMPLE Ferences between: BMWP families listed on sample data sheet and BMWP families found in SAMPLE by IFE	EMWP FAMILIES FOUND BY IFF (This box is onlow completed when vial is supplied with the sample)	y no ed	ADDITIONAL FAMILIES FOUND BY IFE None				
* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 0 NET GAINS 0 OMISSIONS 0 NOTES:									

