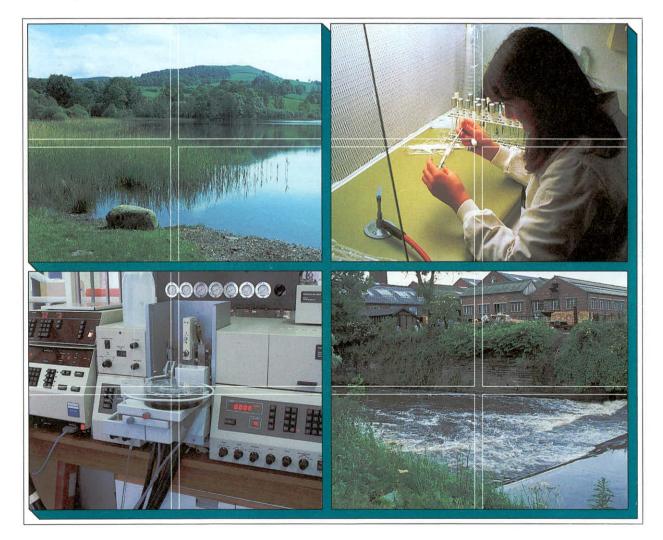
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An audit of performance in the processing of macro-invertebrate samples in 1994. Northern Ireland

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Report To: IFE Report Ref. No: Industrial Research & Technology Unit, Northern Ireland RL/T04071h1/11







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Project Leader: Report Date: Report To:

IFE Report Ref. No:

R.J.M. Gunn May 1995 Industrial Research & Technology Unit, Northern Ireland RL/T04071h1/11

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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 60 samples audited for Northern Ireland. 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 macroinvertebrates 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 IRTU listing of families and those identified from the vial by IFE
- d) A comparison was made between the IRTU listing of families and those found in the sample by IFE
- e) "Losses" or "gains" from the IRTU 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 IRTU 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 IRTU data sheet. Families not on the IRTU 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 IRTU 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 list but present in the sample were entered in box B under "additional families" as before. Families recorded on the list but not found by IFE were indicated on the left hand side of box B. Where the vial of animals was retained by the sorter, entries in this box could include the sole representative of a family which was removed, a family seen at the site which escaped or was released (without mention being made on the data sheet), inaccurate identification, the wrong family box being ticked on the 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.

RE(JION	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 NO FOUND BY IFE	F 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 NO: FOUND BY IFE (This box is only completed when no vial is supplied with the sample)	F ADDITIONAL FAMILIES FOUND BY IFE
ir	Taxa recorded on data sheen a sample (omissions) NET LOS OTES:]	

River	Site	Sorter	Losses	Gains	Omissions
Glenelly	Corrick Bridge	MJO	1	1	0
Strule	Stone Bridge	MJO	0	1	0
Main	Gracehill Bridge	PRH	1	2	0
Lower Bann	Toomebridge	CAK	0	1	0
Ravernet	Sprucefield	CAK	0	1	0
Lagan	Drum Bridge	PRH	0	1	0
Moyola	Fortwilliam Bridge	IO'N	1	1	0
Mocosquin	Ree Bridge	CAK	2	4	0
Ravernet	Legacurry	CAK	2	0	1
Fury	Belalastera	MJO	1	1	0
Quiggery Water	Ecclesville	MJO	0	0	0
Douglas Burn	Douglas Bridge	MJO	1	1	0
Finn	Clady Bridge	IO'N	1	1	0
Owenkillew	Killymore Bridge	IO'N	0	2	0
Lower Bann	Portglenone	IO'N	1	1	0
Blackburn	Widow Steeles Bridge	IO'N	0	2	0
Blackwater	The Moy	PRH	0	1	0
Moyola	New Bridge	PRH	0	0	0
Grange Water	Curran	PRH	2	1	0
Blackwater	Caledon Bridge	CAK	0	1	1

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TABLE 2. The 20 spring samples audited for Northern Ireland

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TIDED 5. The 20 summer sumples addred for Rollien Heland	TABLE 3.	The 20 summer	samples audited	for Northern Ireland
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River	Site	Sorter	Losses	Gains	Omissio
Bush	Bushmills	PRH	0	0	0
Lagan	Drum Bridge	PRH	0	0	0
Bush	Ballyhoe Bridge	MJO	0	2	0
Upper Bann	McCombs Bridge	PRH	0	1	0
Upper Bann	Katesbridge	MJO	0	3	0
Dervock	Iderown Bridge	MJO	0	2	1
Lower Bann	The Cutts	CAK	0	3	0
Moyola	New Bridge	CAK	0	2	0
Newtown Butler	Newtown Butler Bridge	IO'N	0	0	0
Grange Water	Curran	MJO	0	1	0
Upper Bann	Milltown	CAK	1	0	0
Blackburn	Widow Steeles Bridge	PRH	0	0	0
Lower Bann	Toomebridge	MJO	0	0	0
Aghivey	Moneycarrie Bridge	CAK	0	1	0
Ballymoney	Glenstall Bridge	PRH	0	0	0
Aghadowey	Whites Bridge	CAK	0	3	0
Macosquin	Ree Bridge	CAK	0	0	1
Finn	Rosslea Bridge	IO'N	1	0	1
Ballymoney	Ballymoney Road Bridge	IO'N	0	0	0
Manyburns	Manyburns Bridge	IO'N	0	1	0

TABLE 4. The 20 autumn samples audited for Northern Ireland

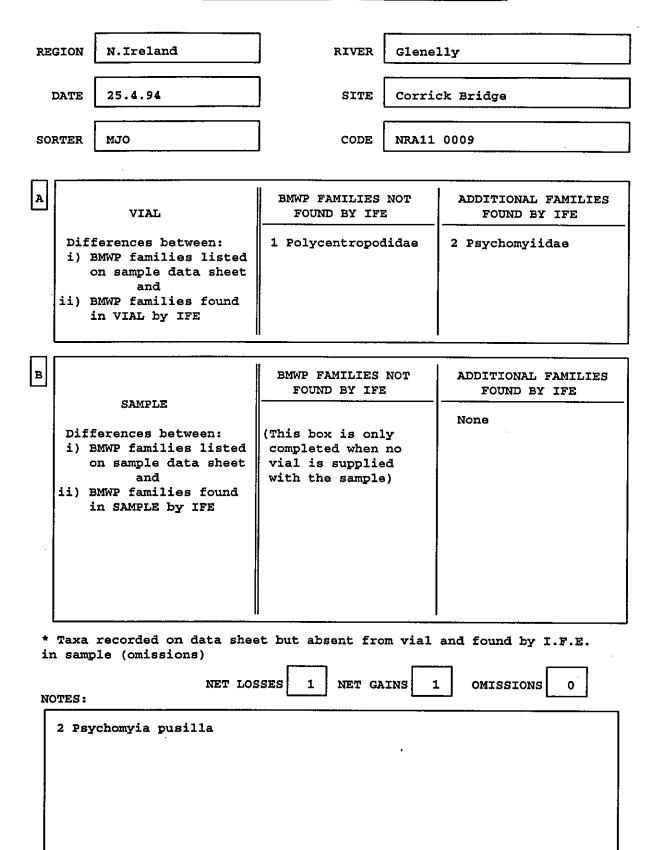
River	Site	Sorter	Losses	Gains	Omissions
Glynn	Glynn	PRH	0	0	0
Routing Burn	Browns Bridge	IO'N	1	2	0
Bush	Ballyhoe Bridge	PRH	0	1	0
Six Mile Water	d/s Ballyclare	IO'N	0	1	0
Glencloy	Carnlough	IO'N	0	2	0
Clady Water	Dunadry Road Bridge	IO'N	1	2	0
Kilbroney	Newtown Bridge	CAK	0	2	0
Cullys Burn	Glenauna Hotel	CAK	0	3	1
Bush	Conagher Bridge	IO'N	0	0	0
Killyclougher Burn	Lovers Retreat	PRH	0	1	0
Glenarm	Glenarm	PRH	0	2	1
Fourmile Burn	Newmill	PRH	1	1	0
Eskragh Water	Seskinore Mill Bridge	CAK	1	0	1
Ghann	Green Park Bridge	CAK	0	1	0
Forkhill	Forkhill Lower Bridge	MJO	0	1	0
Moygannon	Moygannon Ford	MJO	3	1	0
Aughrim	Kilkeel	MJO	0	0	0
Six Mile Water	Antrim Forum	MJO	2	3	0
Glenavy	Leap Bridge	CAK	0	1	1
Crumlin	Cidercourt Bridge	MJO	0	1	0

APPENDIX

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Results of individual sample audits



REGION	N.Ireland	RIVER	Strule	3		
DATE	25.4.94	SITE	Stone	Bridge		
SORTER	МЈО	CODE	NRA11	0011		
i)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		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 IFF (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 1 Leptoceridae		
<pre>* 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 Athripsodes albifrons 1 only</pre>						

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REGION	N.Ireland	RIVER	Main				
DATE	9.5.94	SITE	Gracel	hill Bridge			
SORTER	PRH	CODE	NRA11	0031			
i)	VIAL fferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF 1 Hydrophilidae	2	ADDITIONAL FAMILIES FOUND BY IFE None			
i)	SAMPLE fferences 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 d	ADDITIONAL FAMILIES FOUND BY IFE 2 Glossiphoniidae 3 Tipulidae			
<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 2 OMISSIONS 0 NOTES: 1 Megasternum obscurum (terrestrial Hydrophilid) in vial 2 Helobdella stagnalis 1 only 3 Dicranota sp. Date on sample bottle is 9.4.94, date on label and data sheet is 9.5.94.</pre>							

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REGION N.Ireland	RIVER	ower Bann
DATE 20.4.94	SITE	comebridge
SORTER CAK	CODE	RA11 0081
A	BMWP FAMILIES NO FOUND BY IFE	T 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 Psychomyiidae
в	BMWP FAMILIES NO FOUND BY IFE	T 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 shee	at but absent from y	vial and found by T.F.F.

in sample (omissions)

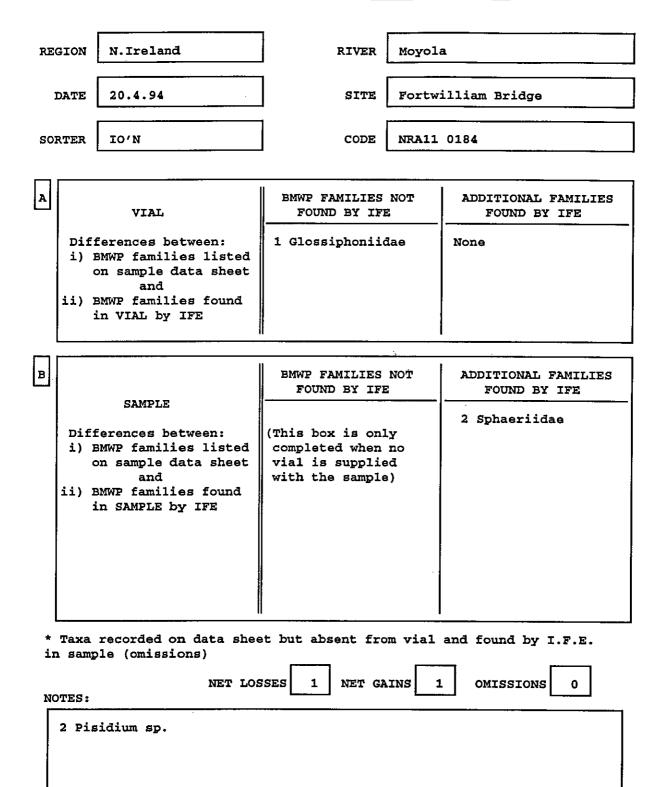
NOT	ES:		NET	LOSSES	0	net	GAINS	1	OMISSIONS	0
1	Tinodes	waeneri								

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RE	GION N.Ireland	RIVER	Ravernet			
:	DATE 13.4.94	SITE [Sprucefield			
SO	RTER CAK	CODE	NRA11 0101			
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	BMWP FAMILIES N FOUND BY IFE None	NOT ADDITIONAL FAMILIES FOUND BY IFE None			
В	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	BMWP FAMILIES N FOUND BY IFE (This box is only completed when n vial is supplied with the sample)	FOUND BY IFE 1 Polycentropodidae			
<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)</pre>						

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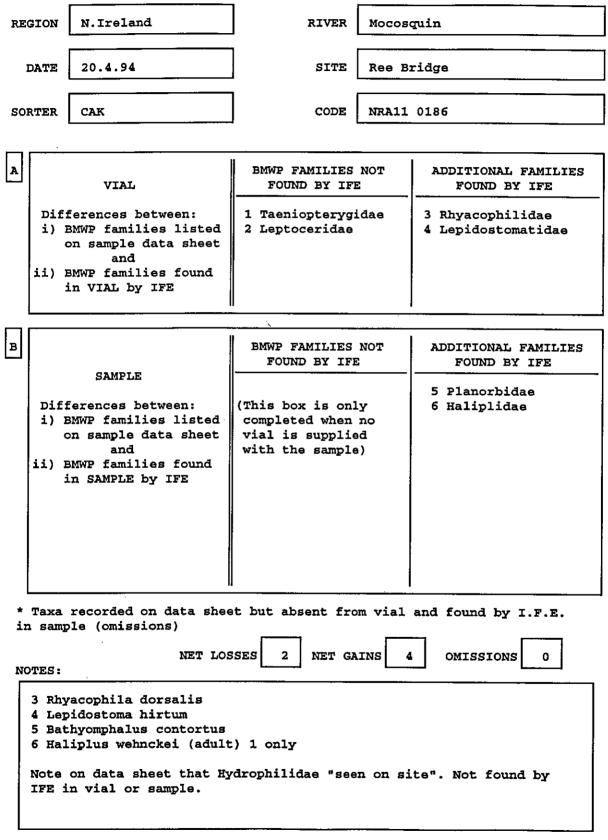
RE	GION N.Ireland	RIVER	Lagan			
I	DATE 21.4.94	SITE	Drum E	Bridge		
SOI	RTER PRH	CODE	NRA11	0104		
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE None		ADDITIONAL FAMILIES FOUND BY IFE 1 Polycentropodidae		
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 None		
<pre>* 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 Polycentropus flavomaculatus</pre>						



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REGION N.Ireland RIVER Ravernet DATE 13.4.94 SITE Legacurry SORTER CAK CODE NRA11 0212 A ADDITIONAL FAMILIES BMWP FAMILIES NOT VIAL FOUND BY IFE FOUND BY IFE Differences between: 1 Erpobdellidae* None i) BMWP families listed 2 Leptoceridae on sample data sheet 3 Tipulidae and ii) BMWP families found in VIAL by IFE в BMWP FAMILIES NOT ADDITIONAL FAMILIES FOUND BY IFE FOUND BY IFE SAMPLE 4 Erpobdellidae* (This box is only Differences between: i) BMWP families listed completed when no on sample data sheet vial is supplied and with the sample) ii) 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) NET LOSSES 2 NET GAINS 0 OMISSIONS 1 NOTES: 2 Empty Leptocerid cases in sample 3 Empididae larva (Hemerodromia type) in vial 4 Erpobdella octoculata

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

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REC	GION N.Irelan	ıđ	RIVER	Fury		
I	DATE 13.4.94		SITE	Belal	elalastera	
SOI	RTER MJO		CODE NRA11 0228		0228	
A	VIAL Differences h i) BMWP famil on sample and ii) BMWP famil in VIAL by	ies listed data sheet ies found	BMWP FAMILIES FOUND BY IFF 1 Psychomyiidae	:	ADDITIONAL FAMILIES FOUND BY IFE None	
В	SAMPLE Differences h i) BMWP famil on sample and ii) BMWP famil in SAMPLE	etween: ies listed data sheet ies found	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 Hydrobiidae	
in NO	<pre>* 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 Potamopyrgus jenkinsi 1 only</pre>					

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RE	GION N.Ireland	RIVER Quig	gery Water
1	DATE 25.4.94	SITE Eccl	esville
SO	RTER MJO	CODE NRA1	1 0260
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	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
ir	Taxa recorded on data sheen sample (omissions) NET LOS		and found by I.F.E. O OMISSIONS O

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REGION	N.Ireland	RIVER	Dougla	s Burn
DATE	25.4.94	SITE	Dougla	s Bridge
SORTER	MJO	CODE NRA11 0281		0281
A	VIAL	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE
i)	fferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	1 Asellidae		None
i)	SAMPLE fferences 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 supplie with the sample	y no sd	ADDITIONAL FAMILIES FOUND BY IFE 2 Oligochaeta
in sar NOTES:	a recorded on data shee nple (omissions) NET LOS errestrial Isopod in vi Indet Tubificid 1 only	SSES 1 NET GA		ond found by I.F.E.

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REC	SION N.Ireland	RIVER	Finn	
I	DATE 25.4.94	SITE [Clady	Bridge
SOF	RTER IO'N	CODE	NRA11	0003
		<u> </u>		
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	1 Folycentropod	iđae	2 Psychomyiidae
₿	SAMPLE	BMWP FAMILIES I FOUND BY IFE	=	ADDITIONAL FAMILIES FOUND BY IFE
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and i) BMWP families found in SAMPLE by IFE (This box is only completed when no vial is supplied with the sample)		no I	None
L *	Taxa recorded on data shee	t but absent from	vial a	and found by T F F
in	sample (omissions) NET LOS TES:	[]	[
	2 Psychomyia pusilla		,	

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REGION	N.Ireland	RIVER	Owenk:	illew
DATE	25.4.94	SITE	Killy	more Bridge
SORTER	IO'N	CODE	NRA11	0008
i) ii)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE None		ADDITIONAL FAMILIES FOUND BY IFE None
i) : ii) :	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 d	ADDITIONAL FAMILIES FOUND BY IFE 1 Dytiscidae 2 Tipulidae
<pre>* 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 Stictotarsus duodecimpustulatus (adult) 1 only 2 Molophilus sp.</pre>				

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RE	GION	N.Ireland	RIVER	Lower	Bann
נ	DATE	20.4.94	SITE	Portg	lenone
SORTER IO'N CODE NRA11 0080		0080			
A	UIAL Differences between: i) BMWP families listed on sample data sheet		BMWP FAMILIES NOT FOUND BY IFE 1 Dendroccelidae		ADDITIONAL FAMILIES FOUND BY IFE None
	-	and BMWP families found in VIAL by IFE			
В	Differences between: (7 i) BMWP families listed on sample data sheet		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 Haliplidae
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 1 OMISSIONS 0 NOTES: 1 Asterisk but no explanatory note against entry on data sheet. Not found by IFE in vial or sample. 2 Haliplus fluviatilis (adult) 1 only Note on data sheet that Erpobdellidae "not recorded in lab analysis". Not found by IFE in vial or sample.				

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REGION N.Ireland	RIVER Black	burn
DATE 20.4.94	SITE Widow	Steele's Bridge
SORTER IO'N CODE NRA11 0250		0250
A VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	0	ADDITIONAL FAMILIES FOUND BY IFE 1 Lepidostomatidae
B SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		ADDITIONAL FAMILIES FOUND BY IFE 2 Leuctridae
<pre>* Taxa recorded on data shi in sample (omissions) NET Le NOTES: 1 Lepidostoma hirtum 2 Leuctra inermis 1 only</pre>		

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REGIO	N.Ireland	RIVER	Black	water
DATI	13.4.94	SITE	The M	ру
SORTE	PRH	CODE	NRA11	0056
i)	VIAL fferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		ADDITIONAL FAMILIES FOUND BY IFE None
i)	SAMPLE fferences 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 d	ADDITIONAL FAMILIES FOUND BY IFE 1 Hydropsychidae
<pre>* 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 Hydropsyche siltalai 1 only</pre>				

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REGION	N.Ireland	RIVER	Moyola	a
DATE	20.4.94	SITE	New B	ridge
SORTER	PRH	CODE	NRA11	0078
i)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		ADDITIONAL FAMILIES FOUND BY IFE None
i) ii)	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 d	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: None on data sheet that Dendrocoelidae "noted on site". Not found by IFE in vial or sample.				

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REG	GION N.Ireland	RIVER	Grange	e Water	
1	DATE 20.4.94	SITE	Curra	a	
SOI	RTER PRH	CODE NRA11 0270		0270	
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 1 Leptoceridae 2 Lepidostomati		ADDITIONAL FAMILIES FOUND BY IFE None	
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 IFF (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 3 Leuctridae	
in NO	<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)</pre>				

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REGION	N.Ireland	RIVER	Blackwater
DATE	13.4.94	SITE	Caledon Bridge
SORTER	Сак	CODE	NRA11 0057
A	VIAL	BMWP FAMILIES FOUND BY IFF	
i) ii)	ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	1 Tipulidae*	None
i) : ii) :	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 supplie with the sample	FOUND BY IFE 2 Psychomyiidae 2 Tipulidae* no ed
* Taxa in samp NOTES:	recorded on data shee ole (omissions) NET LOS	[]	m vial and found by I.F.E.
1,3 1 in se	Empididae larva (Wiede ample ychomyia pusilla 1 on]		vial, Dicranota sp. 1 only

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REGION N.Ireland	RIVER Bush		
DATE 25.7.94	SITE Bushm	ills	
Sorter Prh	CODE NRA11	0089	
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	
B 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:			

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EXTERNAL AUDIT OF BIOLOGICAL SAMPLES - 1994

REGION N.Ireland	RIVER	agan		
DATE 20.7.94	SITE D	Drum Bridge		
SORTER PRH	CODE NRA11 0104			
A	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		
B SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP 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 None		
<pre>* 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:</pre>				

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REG	SION N.Ireland	RIVER Bush	· · · · ·	
I	DATE 25.7.94	SITE Bally	yhoe Bridge	
SOF	TER MJO	CODE NRA11 0264		
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	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 1 Gammaridae 2 Perlidae	
<pre>* 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 Gammarus duebeni 2 Dinocras cephalotes 1 only</pre>				

REC	GION N.Ireland	RIVER Upper	Bann	
I	DATE 21.7.94	SITE McCom	bs Bridge	
SOF	TER PRH	CODE NRA11	0288	
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	
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)	ADDITIONAL FAMILIES FOUND BY IFE 1 Haliplidae	
<pre>* 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 Haliplus wehnckei (adult) 1 only</pre>				

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REGION	N.Ireland	RIVER	Upper	Bann
DATE	21.7.94	SITE	Katesb	ridge
SORTER	мјо	CODE	NRA11	0287
A	VIAL	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE
i)	fferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None		None
i)	SAMPLE fferences 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 d	ADDITIONAL FAMILIES FOUND BY IFE 1 Glossiphoniidae 2 Asellidae 3 Leuctridae
in sau NOTES 1 G 2 Au	a recorded on data shee mple (omissions) NET LOS : lossiphonia complanata sellus aquaticus 1 only euctra fusca 1 only	SES 0 NET GA	r	and found by I.F.E.

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RE	GION N.Ireland	RIVER	Dervock	
1	DATE 25.7.94	SITE	Iderown Bridge	
SOI	RTER MJO	CODE	NRA11 0093	
A	VIAL Differences between: i) BMWP families liste on sample data shee and ii) BMWP families found in VIAL by IFE	t	FOUND BY IFE	
В	SAMPLE Differences between: i) BMWP families liste on sample data shee and ii) BMWP families found in SAMPLE by IFE	t vial is supplied with the sample)	FOUND BY IFE 2 Lymnaeidae 3 Baetidae 4 Hydrophilidae*	
<pre>* 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 1 NOTES: 2 Lymnaea peregra 3 Baetis rhodani 4 Helophorus aequalis, H.brevipalpis, H.grandis, Hydraena sp.(adults)</pre>				

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REGION	N.Ireland	RIVER	Lower	Bann
DATE	28.7.94	SITE	The Cu	utts
SORTER	САК	CODE	NRA11	0085
i)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFE None		ADDITIONAL FAMILIES FOUND BY IFE None
i) ii)	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	У no d	ADDITIONAL FAMILIES FOUND BY IFE 1 Planorbidae 2 Sphaeriidae 3 Leuctridae
<pre>* 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 Planorbis sp.(juvenile) 1 only 2 Pisidium sp. 3 Leuctra fusca 1 only Note on data sheet that Gerridae "seen on site". Not found by IFE in vial or sample.</pre>				

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REGION N.Ireland	RIVER Moyol	a
DATE 27.7.94	SITE New B	ridge
SORTER CAK	CODE. NRA11	0078
 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
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)	ADDITIONAL FAMILIES FOUND BY IFE 1 Hydropsychidae 2 Tipulidae
<pre>* Taxa recorded on data she in sample (omissions)</pre>	SSES 0 NET GAINS 2	

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RE	GION N.Ireland	RIVER	town Butler
1	DATE 3.8.94	SITE New	cown Butler Bridge
SOI	RTER IO'N	CODE NRA	11 0276
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	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
in	Taxa recorded on data shee sample (omissions) NET LOS TES:		1 and found by I.F.E. 0 OMISSIONS 0

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REGION	N.Ireland	RIVER	Grange	9 Water
DATE	27.7.94	SITE	Currar	1
SORTER	мјо	CODE	NRA11	0270
A	VIAL	BMWP FAMILIES FOUND BY IFE	1	ADDITIONAL FAMILIES FOUND BY IFE
i) 1 ii) 1	ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None		1 Haliplidae
i) ((ii)	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 d	ADDITIONAL FAMILIES FOUND BY IFE None
in sam <u>r</u> NOTES:	recorded on data shee ole (omissions) NET LOS Tchius elevatus (adult	SES 0 NET GA	— —	7 []

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REG	ION N.Ireland	RIVER Up	per Bann		
Di	ATE 21.7.94	SITE MI	lltown		
SOR	TER CAK	CODE NR	A11 0284		
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 Lymnaeidae	ADDITIONAL FAMILIES FOUND BY IFE None		
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and i) 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 NOT	<pre>* 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: 1 Succinea sp. in vial</pre>				

REGION	N.Ireland	RIVER	Backb	urn
DATE	27.7.94	SITE	Widow	Steele's Bridge
SORTER	PRH	CODE	NRA11	0250
i)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		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 IFF (This box is onl completed when vial is supplie with the sample	y no nd	ADDITIONAL FAMILIES FOUND BY IFE None
* Taxa in sam NOTES:	recorded on data shee ple (omissions) NET LOS	[]		7 []

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REG	ION N.Ireland	RIVER	Lower Bann
D	ATE 27.7.94	SITE	Toomebridge
SOR	TER MJO	CODE	NRA11 0081
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	BMWP FAMILIES NO FOUND BY IFE None	OT ADDITIONAL FAMILIES FOUND BY IFE None
B	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	BMWP FAMILIES NO FOUND BY IFE (This box is only completed when no vial is supplied with the sample)	FOUND BY IFE
in	Taxa recorded on data shee sample (omissions) NET LOS TES:	[]	

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RE	GION	N.Ireland	RIVER	Aghiv	еу
I	DATE	28.7.94	SITE	Money	carrie Bridge
SOI	RTER	CAR	CODE	NRA11	0188
A	i) ii)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		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 IFE (This box is onl completed when vial is supplie with the sample	Y no đ	ADDITIONAL FAMILIES FOUND BY IFE 1 Limnephilidae
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 Ecclisopteryx guttulata, Potamophylax sp.				

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REGI	CON N.Ireland	RIVER Bally	money
DA	TE 28.7.94	SITE Glens	tall Bridge
SORT	PER PRH	CODE NRA11	0082
	VIAL Differences between: i) BMWP families listed on sample data sheet and i) 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 i) 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
* Tain a	axa recorded on data shee sample (omissions) NET LOS ES:		and found by I.F.E.

REGION N.Ireland RIVER Aghadowey DATE 28.7.94 SITE Whites Bridge SORTER CAK CODE NRA11 0187 A BMWP FAMILIES NOT ADDITIONAL FAMILIES VIAL FOUND BY IFE FOUND BY IFE Differences between: None None i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE в BMWP FAMILIES NOT ADDITIONAL FAMILIES FOUND BY IFE FOUND BY IFE SAMPLE 1 Sphaeriidae Differences between: (This box is only 2 Caenidae i) BMWP families listed completed when no 3 Hydrophilidae on sample data sheet vial is supplied anđ with the sample) ii) 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) NET LOSSES 0 NET GAINS 3 OMISSIONS 0 NOTES: 1 Pisidium sp. 2 Caenis rivulorum 1 only 3 Helophorus brevipalpis (adult) 1 only

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REGION N.Ireland	RIVER	Macosquin			
DATE 28.7.94	SITE	Ree Bridge			
SORTER CAK	CODE	CODE NRA11 0186			
A	BMWP FAMILIES FOUND BY IF				
Differences between i) BMWP families 1 on sample data s and ii) BMWP families fo in VIAL by IFE	isted Sheet	lae* None			
B Differences between i) BMWP families li on sample data s and ii) BMWP families fo in SAMPLE by IFE	sted completed when wheet vial is supplied with the sample	FOUND BY IFE 2 Glossiphoniidae*			
<pre>* 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 1 NOTES: 2 Glossiphonia complanata</pre>					

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REGION	N.Ireland	RIVER	Finn	
DATE	3.8.94	SITE	Rossie	ea Bridge
SORTER	IO'N	CODE	NRA11	0279
i) (ii)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF 1 Haliplidae* 2 Gyrinidae		ADDITIONAL FAMILIES FOUND BY IFE None
i) F c ii) F	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 onl completed when vial is supplie with the sample	Y no ed	ADDITIONAL FAMILIES FOUND BY IFE 3 Haliplidae*
<pre>* 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 1 NOTES: 3 Brychius elevatus (adults)</pre>				

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REGION	N.Ireland	RIVER	Ballyr	money	
DATE	28.7.94	SITE	Bally	money Road Bridge	
SORTER	IO'N	CODE	NRA11	0086	
i)	VIAL Fferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		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 d	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:					

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REGION	N.Ireland	RIVER	Manybu	lrns	
DATE	5.8.94	SITE	Manybu	ırns Bridge	
SORTER	IO'N	CODE	NRA11	0154	
i) B	VIAL erences between: MWP families listed n sample data sheet	BMWP FAMILIES FOUND BY IFF None		ADDITIONAL FAMILIES FOUND BY IFE None	
	and MWP families found n VIAL by IFE				
i) Bl on ii) Bl	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 1 Hydrophilidae	
<pre>* 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 Hydraena gracilis (adult) 1 only</pre>					

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REC	GION	N.Ireland	RIVER	Glynn	
I	DATE	13.9.94	SITE	Glynn	
SOI	RTER	PRH	CODE NRA11 0217		0217
A	i) ii)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFT None		ADDITIONAL FAMILIES FOUND BY IFE None
В	i) ii)	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 supplic with the sample	E Ly no ed	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	N.Ireland	RIVER	Routi	ng Burn
I	DATE	11.10.94	SITE	Brown	s Bridge
SOI	RTER	IO'N	CODE NRA11 0207		0207
A		VIAL	BMWP FAMILIES FOUND BY IFF		ADDITIONAL FAMILIES FOUND BY IFE
	i)	ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	1 Lepidostomati	dae	None
В	i) ii)	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 supplie with the sample	y no od	ADDITIONAL FAMILIES FOUND BY IFE 2 Ephemerellidae 3 Hydrophilidae
<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 2 OMISSIONS 0 NOTES: 2 Ephemerella ignita 3 Hydraena gracilis (adult) 1 only Note on data sheet that Piscicolidae found on site but not in sample. Not found by IFE in vial or sample.</pre>					
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REGION	.Ireland	RIVER	Bush		
DATE 7	.11.94	SITE	Bally?	noe Bridge	
SORTER PI	RH	CODE	NRA11	0264	
A	VIAL	BMWP FAMILIES FOUND BY IFE		ADDITIONAL FAMILIES FOUND BY IFE	
i) BMWI on s ii) BMWI	ences between: ? families listed sample data sheet and ? families found /IAL by IFE	None		None	
i) BMWF on s ii) BMWF	SAMPLE ences between: families listed sample data sheet and families found SAMPLE by IFE	BMWP FAMILIES FOUND BY IFF (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 1 Hydrobiidae	
* 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 Potamopyrgus jenkinsi 1 only					

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REGION	N.Ireland	RIVER	Six M:	ile Water	
DATE	26.10.94	SITE	d/s Ba	allyclare	
SORTER	IO'N	CODE	NRA11	0041	
i)	VIAL Eferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		ADDITIONAL FAMILIES FOUND BY IFE None	
i)	SAMPLE Eferences 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 od	ADDITIONAL FAMILIES FOUND BY IFE 1 Lymnaeidae	
<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)</pre>					

REGION	N.Ireland	RIVER	Glencl	loy	
DATE	10.11.94	SITE	Carnlough		
SORTER	IO'N	CODE	NRA11	0196	
i)	VIAL fferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		ADDITIONAL FAMILIES FOUND BY IFE None	
i)	SAMPLE fferences 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 supplie with the sample	y no ed	ADDITIONAL FAMILIES FOUND BY IFE 1 Rhyacophilidae 2 Philopotamidae	
<pre>* 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 Glossosoma sp. 1 only 2 Philopotamus montanus 1 only</pre>					

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REG	N.Ireland	RIVER Clady	Water			
E	DATE 17.10.94	SITE Dunad	ry Road Bridge			
SOR	TER IO'N	CODE NRA11 0223				
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	1 Sericostomatidae	2 Odontoceridae			
в		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)	3 Ephemerellidae			
in NO	<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 1 NET GAINS 2 OMISSIONS 0 NOTES: 2 Odontocerum albicorne 2 Debuggering 1 ambu</pre>					
	3 Ephemerella ignita 1 onl	.	х.			

RE	GION N.Ireland	RIVER	Kilbro	oney		
נ	DATE 5.10.94	SITE	Newtow	vn Bridge		
SOI	RTER CAK	CODE	NRA11	0121		
A	VIAL	BMWP FAMILIES FOUND BY IFF		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 Perlodidae		
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 IFF (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 2 Scirtidae		
ir	<pre>* 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 Isoperla grammatica 2 Elodes sp. (larva) 1 only</pre>					

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REC	GION N.Ireland	RIVER Cully	's Burn		
I	DATE 13.9.94	SITE Glena	una Hotel		
SOI	TER CAK	CODE NRA11	0213		
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 Asellidae*	ADDITIONAL FAMILIES FOUND BY IFE 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)	ADDITIONAL FAMILIES FOUND BY IFE 2 Sphaeriidae 3 Asellidae* 4 Hydrophilidae 5 Simuliidae		
<pre>* 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 1 NOTES: 1,3 Terrestrial Isopod in vial, Asellus aquaticus 1 only in sample 2 Pisidium sp. 4 Hydraena gracilis (adult) 1 only 5 Simulium (Wilhelmia) sp. 1 only</pre>					

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RE	GION N.Ireland	RIVER	Bush		
]	DATE 7.11.94	SITE	Conagl	her Bridge	
SO	RTER IO'N	CODE	NRA11	0091	
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 None		ADDITIONAL FAMILIES FOUND BY IFE None	
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	y. no d	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:					

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REGION	N.Ireland		Killyclougher Burn		
DATE	9.10.94		Lovers Retreat		
SORTER	PRH	CODE	NRA11 0200		
i)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES NO FOUND BY IFE None	OT 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 NO FOUND BY IFE (This box is only completed when no vial is supplied with the sample)	FOUND BY IFE		
<pre>* 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 Limnius volckmari (larva) 1 only</pre>					

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REC	GION N.Ireland	RIVER	Glenarm			
I	DATE 10.11.94	SITE	Glenarm			
SOI	RTER PRH	CODE	NRA11 0195			
A	VIAL Differences between: i) BMWP families list on sample data she and ii) BMWP families foun in VIAL by IFE	et	FE FOUND BY IFE	-		
B	SAMPLE Differences between: i) BMWP families list on sample data she and ii) BMWP families foun in SAMPLE by IFE	et vial is suppli with the sampl	FE FOUND BY IFE 2 Lymnaeidae nly 3 Sphaeriidae n no 4 Heptageniidae* ied			
ir	<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)</pre>					

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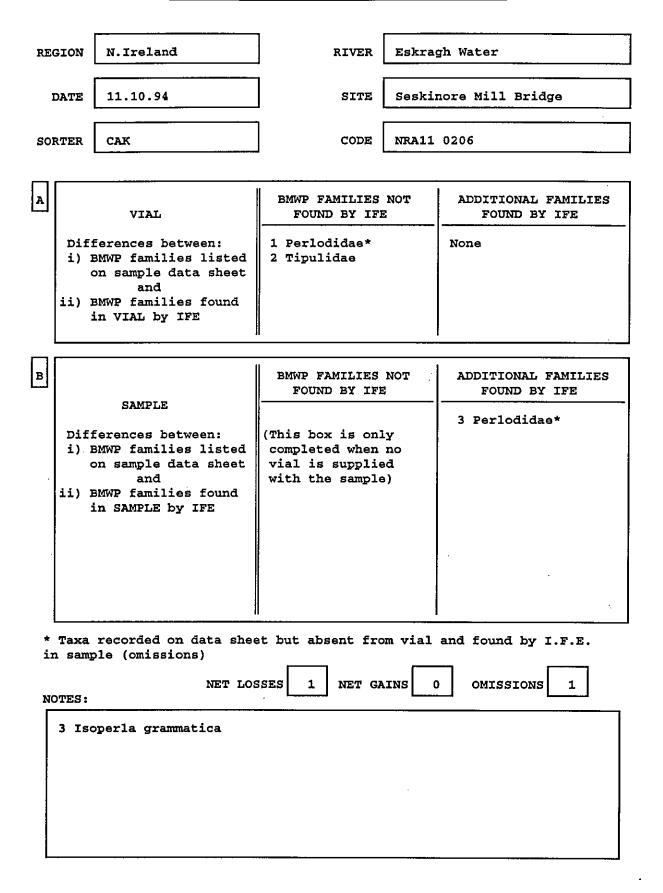
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REC	GION N.Ireland	RIVER	Fourm	ile Burn	
I	DATE 26.10.94	SITE	Newmi	11	
SOI	RTER PRH	CODE	NRA11	0290	
A	VIAL	BMWP FAMILIES FOUND BY IF		ADDITIONAL FAMILIES FOUND BY IFE	
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Lepidostomat	ldae	2 Sericostomatidae	
в		BMWP FAMILIES FOUND BY IF		ADDITIONAL FAMILIES FOUND BY IFE	
	SAMPLE	<u> </u>	<u></u>		
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box is on completed when vial is supplic with the sample	no ed	None	
				· · · · · · · · · · · · · · · · · · ·	
<pre>* 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 Sericostoma personatum</pre>					

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REGION	N.Ireland	RIVER	Ghann			
DATE	5.10.94	SITE	Green	Park Bridge		
SORTER	Сак	CODE	NRA11	0220		
i)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None	1	ADDITIONAL FAMILIES FOUND BY IFE None		
i) ii)	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 supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 1 Hydrobiidae		
<pre>* 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 Potamopyrgus jenkinsi</pre>						

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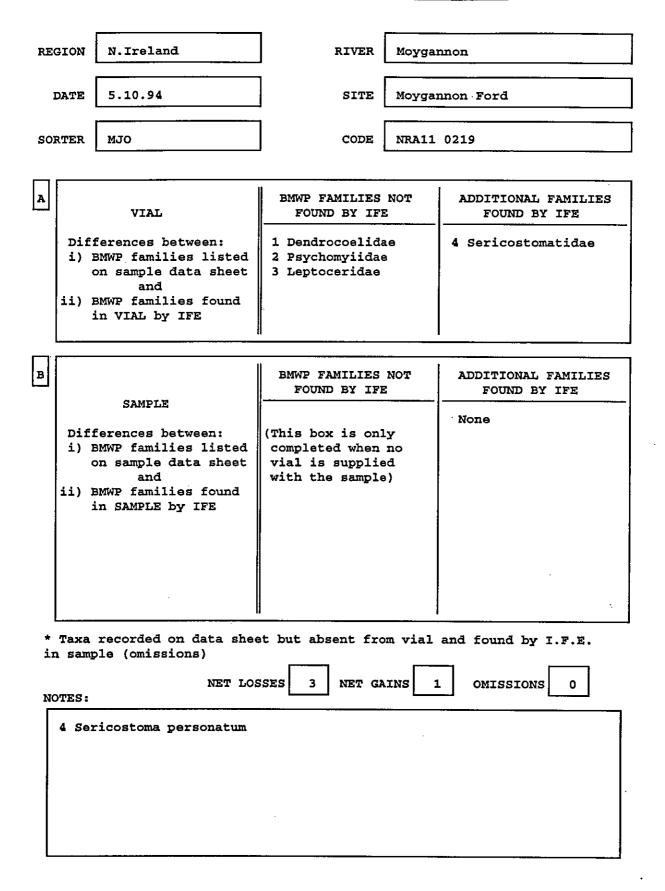
REC	GION N.Ireland	RIVER	Forkh	i11		
I	DATE 14.9.94	SITE	Forkh:	ill Lower Bridge		
SOF	RTER MJO	CODE	CODE NRA11 0246			
A	VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		ADDITIONAL FAMILIES FOUND BY IFE None		
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	y no d	ADDITIONAL FAMILIES FOUND BY IFE 1 Planorbidae		
in	<pre>* 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 Bathyomphalus contortus 1 only</pre>					

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REG	ION	N.Ireland	RIVER	Aughr	im		
Di	ATE	5.10.94	SITE	Kilke	əl		
SOR	TER	мјо	CODE	NRA11	0232		
A	i) : ii) :	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF None		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 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:						

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REG	GION N.Ireland	RIVER	Six Mi	le Water		
I	DATE 17.10.94	SITE	Antrin	n Forum		
SOI	RTER MJO	CODE	NRA11	0039		
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 1 Leptoceridae 2 Lepidostomati	1	ADDITIONAL FAMILIES FOUND BY IFE 3 Hydrophilidae 4 Sericostomatidae		
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 IFF (This box is onl completed when vial is supplie with the sample	y no d	ADDITIONAL FAMILIES FOUND BY IFE 5 Planorbidae		
<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions) NET LOSSES 2 NET GAINS 3 OMISSIONS 0 NOTES: 3 Hydraena gracilis (adult) 4 Sericostoma personatum 5 Gyraulus albus 1 only</pre>						

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REO	GION	N.Ireland	RIVER	Glenav	۲ ۲		
1	DATE	17.10.94	SITE	Leap H	Bridge		
SOI	RTER	CAK	CODE	NRA11	0044		
A	i) ii)	VIAL ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	BMWP FAMILIES FOUND BY IFF 1 Sphaeriidae*		ADDITIONAL FAMILIES FOUND BY IFE 2 Hydrophilidae		
В	i) ii)	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 supplie with the sample	y no ad	ADDITIONAL FAMILIES FOUND BY IFE 3 Sphaeriidae*		
ir	<pre>* Taxa recorded on data sheet but absent from vial and found by I.F.E. in sample (omissions)</pre>						

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REG	GION N.Ireland	RIVER Cruml	in			
I	DATE 17.10.94	SITE Cider	court Bridge			
SO	RTER MJO	CODE NRA11	0043			
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	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP 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 1 Dytiscidae			
ir	<pre>* 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 Oreodytes septentrionalis (adult) 1 only</pre>					

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