

An audit of performance in the processing of macro-invertebrate samples in 1992. NRA Anglian Region

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1. INTRODUCTION

In 1992 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 Anglian Region of the NRA. 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 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**

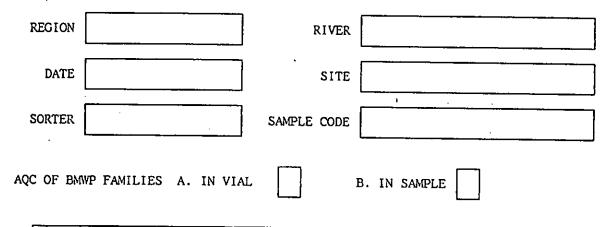
The results of each sample audit were recorded on a standard report form (Table 1). For audit samples where a vial of animals was included, the comparison between the NRA listing and the taxa found in the vial by IFE was shown in box A of the report form. Discrepancies could be due to carelessness, misidentifications 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.

ACKNOWLEDGEMENTS

Thanks to Kay Symes for help with production of results and to Valerie Palmer for typing the manuscript.



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		

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		

NOTES:

NET LOSSES

NET GAINS

TABLE 2.The 9 spring samples audited for Anglian Region.

River	Site	Sorter	Losses	Gains	Omissions
Tiffey	Abbey Bridge	EB	0	0	0
Exton Arm	u/s North Brook	CAE	0	2	0
Cam	Bottisham Lock	JN	0	0	0
Thet	Crowshall Bridge	SEH	0	· 4	0
Cam	Clayhithe Bridge	JN ·	1	1	0
Cam	Green Dragon Footbridge	JN	0	0	0
Newton Brook	A10 Bridge	TNA	. 3	5	3
Middle Level Catchwater	Thistle Hill Farm	TNA	0	3	2
Melsop Stallard	Mount Pleasant Bridge	SEH	0	4	0

 TABLE 3.
 The 16 summer samples audited for Anglian Region

River	Site	Sorter	Losses	Gains	Omissions
Deben	A1120 Bridge	BAW	1	1	1
Gipping	Sproughton Mill	ĒT	0	3	0
Rivenhall Brook	u/s Confluence	РЈМ	0	1	0
Domsey Brook	B1023 Bridge	PJM	0	2	0
Wendling Brook	Carr Lanc Bridge	ET	0	3	0
Brain	Faulkbourne Hall	PJM	1	· 1	0
Ise	B571 Bridge	RPC	· 0	2	0
Harrowden Brook	Rixon Road	RPC	0	2	0
Rattlesden	Gedding Corner	ET	0	6	· 0
Earl Soham Watercourse	Kentish Town Bridge	BAW	1	4	0
Wendling Beck	Beetley Bridge	ET	0	. 3	1
Blackwater	Greys Mill	PJM	0	2	0
Elstow Brook	Hardwick Bridge	JN	0	2	0
Old West	Smithy Fen Farm	SEH	1	9	0
Ouse	Harrold Bridge	TNA	0	8	2
Ouse	A428 Bridge	TNA	· 1	3	1

TABLE 4. The 35 autumn samples audited for Anglian Region

River	Site	Sorter	Losses	Gains	Omissions
Stainfield Beck	Stainfield	PMW	0	1	1
Wittering Brook	Sacrewell Mill	RPC	0	. 3	0
Legsby Beck	Snelland	PMW	1 .	. 3	0
Old Ancholme	Brigg	SJB	0	2	2
Alma Beck	Ditchingham Bridge	ET	0	3	1
Wittering Brook	A47 Bridge	RPC	0	5	0
Ancholme	Bishop Bridge	LJS	0	1	1
Harrowden Brook	Rixon Road	LJS	1	2	0
Brampton Branch	A50 Broughton Crossing	PMW	1	3	0
Sywell Brook	Sywell	LJS	0	1	0
Tham	Little Bytham	RPC	0	1	2
South Forty Foot Drain	Donnington Bridge	LJS	1	0	0
Ousemere Lode	u/s South Forty Foot	LJS	1	3	0
West Glen	Little Bytham	RPC	0	1	1
Nene	Nunn Mills Bridge	PMW	1	5	0
Chilton Brook	Folly Road Bridge	CAF	. 0	2	0
Boreham Brook	Boreham Hall	CAF	0	4	0
Stour	Baythorne End Bridge	PJM	0	1	0
Stour	Stoke College Floodgates	CAF	. 0	0	1
Stour	Little Thurlow	PJM	0	0	1
Blackwater	Wickham Mill	PJM	0	1	0
Waveney	Beccles Yacht Station	BAW	0	4	0
Stour	Sipsey Bridge	PJM	0	2	. 0
Glaven	Wiveton Bridge	ET	0	2	0
Wensum	Sculthorpe Mill	BAW	0	8	0
Bure	Moor Hall Ford	ET	0	6	2
Burn	Burnham Overy	ΕT	0	5	0
Binham Tributary	Binham Ford	BAW	0	2	0
Witham	Langrick Bridge	PMW	0	4	0

River	Site	Sorter	Losses	Gains	Omissions
Burwell Lode	Upware Lock	SEH	0	4	0
Thet	Westcar Bridge	SEH	0	1	0
Cam	Dimmocks Cote	SEH	0	2	0
Grand Union Canal.	Ashton	TNA	1	4	1
Abbotsley Brook	Warsley	TNA	0	0	0
Melsop Stallard	B1077 Bridge	SEH	0	5	0

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APPENDIX

Results of individual sample audits

REC	ION	Anglian	RIVER	Tiffey	
Ę	ATE	11.3.92	SITE	Abbey I	Bridge
SOF	TER	ЕВ	SAMPLE CODE	NRA01 (0800
AQC C	DF BM	WP FAMILIES A. IN VI	AL + I	3. IN SAN	MPLE +
A		VIAL	BMWP FAMILIES NO FOUND BY IFE	TC	ADDITIONAL FAMILIES FOUND BY IFE
	i)] (ii)]	ferences between: BMWP families listed on sample data sheet and BMWP families found in VIAL by IFE	None		None
В		, SAMPLE	BMWP FAMILIES NO FOUND BY IFE	T	ADDITIONAL FAMILIES
					None

Differences between: i) BMWP families liste on sample data shee and ii) BMWP families found in SAMPLE by IFE		None
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NOTES:

REGION	Anglian	RIVER	Exton Arm
DATE	8.5.92	SITE	u/s North Brook
SORTER	CAE	SAMPLE CODE	NRA01 R05BFEXAR0704
AQC OF BM	WP FAMILIES A. IN VIAL	+	B. IN SAMPLE +

Α	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	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Leptophlebiidae 2 Tipulidae

NOTES: NOTES: 1 Habrophlebia fusca 1 only 2 Pilaria sp. 2

REGION	Anglian	RIVER	Cam
DATE	23.3.92	SITE	Bottisham Lock
SORTER	JN	SAMPLE CODE	NRA01 R02BF33M09
			r

AQC OF BMWP FAMILIES A. IN VIAL

NOTES:

+	

B. IN SAMPLE +

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
τ.	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		None

В	SAMDLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		None

NET LOSSES

0

NET GAINS 0

Label in vial says "Planariidae", "Ancylidae", "Oligochaeta". Acroloxus lacustris found by IFE in vial and sample, Tubificidae found in sample only and no Planariidae found in vial or sample.

REGION	Anglian	RIVER	Thet
DATE	23.3.92	SITE	Crowshall Bridge
SORTER	SEH	SAMPLE CODE	NRA01 R02BF44M01

+

AQC OF BMWP FAMILIES A. IN VIAL

В.	. IN	SAMPLE	+
Б.	- IN	SAMPLE	+

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) EMWP families listed on sample data sheet and ii) EMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	1 Planorbidae 2 Caenidae 3 Limnephilidae 4 Tipulidae
1	NOTES:	NET LOSSES 0	NET GAINS 4

1 Bathyomphalus contortus 1 only 2 Caenis luctuosa/macrura 1 only 3 Indet Limnephilids (juveniles) 4 Pilaria (Pilaria) sp. 1 only

REGION	Anglian	RIVER	Cam
DATE	23.3.92	SITE	Clayhithe Bridge
SORTER	JN	SAMPLE CODE	NRA01 R02BF33M08

+

AQC OF BMWP FAMILIES A. IN VIAL

B. IN SAMPLE

+

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	•	2 Valvatidae

NET LOSSES

1

NET GAINS

1

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NOTES:

2 Valvata cristata

Note on data sheet that Ancylidae and Sialidae "not in pot". Acroloxus lacustris found by IFE in sample, Sialidae not found in vial or sample.

REGION	Anglian	RIVER	Cam
DATE	23.3.92	SITE	Green Dragon Footbridge
SORTER	JN	SAMPLE CODE	NRA01 R02BF33M06
AQC OF BM	WP FAMILIES A. IN VIAL	+ H	3. IN SAMPLE +

.

AQC C	F BMWP	FAMILIES	Α.	IN	VIAL	
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в.	IN	SAMPLE	+
			L

. 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
В	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
			None

		None
Differences between:	(This box only completed	
i) BMWP families listed	when no vial is	
on sample data sheet	supplied with sample)	
and		
ii) BMWP families found		
in SAMPLE by IFE		
· · · ·		
	l	

NET LOSSES 0 NET GAINS 0 NOTES: .

REGION	Anglian	RIVER	Newton Brook
DATE	23.3.92	SITE	A10 Hoffer Bridge, Harston
SORTER	TNA	SAMPLE CODE	NRA01 R02BF30M36

AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +

NOTES:

+	
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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		7 Sericostomatidae

В	CANDLE:	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		<pre>8 Lymnaeidae* 9 Oligochaeta* 10 Glossiphoniidae 11 Baetidae 12 Elmidae 13 Psychomyiidae 14 Chironomidae*</pre>

NET LOSSES

3

NET GAINS 5

7 Sericostoma personatum 8 Lymnaea stagnalis 9 Tubificidae 10 Glossiphonia complanata Chironomini	 Cloeon dipterum, Centroptilum luteolum Elmis aenea (larva) 1 only Lype sp. Tanypodinae, Orthocladiinae,
Label in vial says "Gyrini found by IFE in sample.	dae". Gyrinus natator/substriatus (adult)

REGION	Anglian	RIVER	Middle Level Catchwater
DATE	23.3.92	SITE	Thistle Hill Farm
SORTER	TNA	SAMPLE CODE	NRAO1 RO2BF53M19

AQC OF BMWP FAMILIES A. IN VIAL

+ B. IN SAMPLE

A	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
Differences between: i) BMWP families list on sample data she and ii) BMWP families foun in VIAL by IFE	et	3 Glossiphoniidae 4 Chironomidae

<pre>SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE</pre> (This box only completed when no vial is supplied with sample) 5 Oligochaeta* 6 Asellidae* 7 Hydrophilidae	В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
		 i) BMWP families listed on sample data sheet and ii) BMWP families found 	when no vial is	6 Asellidae*

NET LOSSES

0

NET GAINS

3

3 Helobdella stagnalis

NOTES:

4 Chironomini in vial, Tanypodinae, Orthocladiinae in sample

5 Naididae, Tubificidae, Lumbriculidae

6 Asellus aquaticus

7 Anacaena limbata, Enochrus melanocephalus, E.testaceus (adults)

REGION	Anglian	RIVER	Melsop Stallard
DATE	23.3.92	SITE	Mount Pleasant
SORTER	SEH	SAMPLE CODE	NRA01 R02BF44M31

+

AQC OF BMWP FAMILIES A. IN VIAL

NOTES:

в.	IN	SAMPLE	+

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 Glossiphoniidae 2 Haliplidae

В	CAMELE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	3 Planariidae 4 Rhyacophilidae

NET LOSSES

0

NET GAINS

1 Glossiphonia complanata, Helobdella stagnalis 2 Haliplus sp. (larva) 3 Planaria torva 1 only 4 Agapetus sp. 4

REGION	Anglian	RIVER	Deben	
DATE	14.5.92	SITE	A1120 Bridge, Ashfield	
SORTER	BAW	SAMPLE CODE	NRA01 0866 R04BFDEB020	
AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +				

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 Planariidae* 2 Physidae	None

в	, SAMDEE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	i) BMWP families listed	(This box only completed when no vial is supplied with sample)	3 Planariidae* 4 Valvatidae

NET LOSSES

5 | 1 |

NET GAINS

1

3 Polycelis nigra/tenuis 4 Valvata cristata 1 only

NOTES:

Note on data sheet that Gammaridae "seen on site". Not found by IFE in vial or sample.

REGION	Anglian	RIVER	Gipping
DATE	12.5.92	SITE	Sproughton Mill
SORTER	ET	SAMPLE CODE	NRA01 0885 R04BFG1P190
AQC OF BM	WP FAMILIES A. IN VIAL	+	B. IN SAMPLE +

BMWP FAMILIES NOT ADDITIONAL FAMILIES Α 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	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	1	1 Planariidae 2 Planorbidae 3 Polycentropodidae

NET LOSSES

0

NET GAINS

3

1 Dugesia tigrina

NOTES:

2 Gyraulus albus 1 only

3 Polycentropus flavomaculatus 1 only

Note on data sheet that Dytiscidae "kept as specimen" and that Hydroptilidae "seen on site". Neither of these families found by IFE in vial or sample.

REGION	Anglian	RIVER	Rivenhall Brook
DATE	9.6.92	SITE	u/s Confluence
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFBL0310
AQC OF BMV	WP FAMILIES A. IN VIAL	+	B. IN SAMPLE +

 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	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed	(This box only completed when no vial is supplied with sample)	1 Planariidae

NOTES:

J

NET LOSSES

0

NET GAINS

1

1 Polycelis nigra/tenuis 1 only

REGION	Anglian	RIVER	Domsey Brook
DATE	9.6.92	SITE	B1023 Bridge
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFBL0365
AQC OF BM	WP FAMILIES A. IN VIAL	+	B. IN SAMPLE +

, some a

 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

B	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Planorbidae 2 Caenidae

NOTES:	,	NET LO	DSSES 0	NET GAINS	2
1 Bathyomphalus con 2 Caenis luctuosa/m					

REGION	Anglian	RIVER	Wendling Brook
DATE	10.6.92	SITE	Carr Lane Bridge
SORTER	ET	SAMPLE CODE	NRA01 1044
AQC OF BMV	WP FAMILIES A. IN VIAL	+]	B. IN SAMPLE +

 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	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Valvatidae 2 Hydrobiidae 3 Sphaeriidae

NET LOSSES 0 NET GAINS NOTES: 1 Armiger crista 1 only 2 Potamopyrgus jenkinsi 1 only 3 Pisidium sp.

3

REGION	Anglian	RIVER	Brain
DATE	9.6.92	SITE	Faulkbourne Hall
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFBR0150
			t

AQC OF BMWP FAMILIES A. IN VIAL

+	
---	--

B. IN SAMPLE +

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

в	CANDLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Caenidae

NET LOSSES

1

NET GAINS

1

2 Caenis luctuosa/macrura

NOTES:

Note on data sheet that Dendrocoelidae and Psychomyiidae "on site". Not found by IFE in vial or sample.

REGION	Anglian	RIVER	Ise
DATE	9.6.92	SITE	B571 Bridge
SORTER	RPC	SAMPLE CODE	NRA01 R05BFRISE310B

AQC OF BMWP FAMILIES A. IN VIAL

+

B. IN SAMPLE +

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

В	, SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Hydrobiidae 2 Hydrophilidae

NET LOSSES

0

NET GAINS

2

NOTES:

1 Potamopyrgus jenkinsi 2 Indot Hydrophilid (larva) 1 (

2 Indet Hydrophilid (larva) 1 only

REGION	Anglian	RIVER	Harrowden Brook
DATE	9.6.92	SITE	Rixon Road
SORTER	RPC	SAMPLE CODE	NRA01 R05BFHARR050R
		[3	r

AQC OF BMWP FAMILIES A. IN VIAL

+ B. IN SAMPLE +

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

В	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	1 1	1 Glossiphoniidae 2 Asellidae

NOTES:

NET LOSSES

0

NET GAINS

2

1 Helobdella stagnalis 2 Asellus aquaticus 1 only

•

REGION	Anglian	RIVER	Rattlesden
DATE	12.5.92	SITE	Gedding Corner
SORTER	ET	SAMPLE CODE	NRA01 0879 R04BFRAT010
AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +			

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Α	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

В	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed	(This box only completed when no vial is supplied with sample)	1 Planariidae 2 Planorbidae 3 Sphaeriidae 4 Nemouridae 5 Dytiscidae 6 Elmidae

NOTES: NOTES:

REGION	Anglian	RIVER	Earl Soham Watercourse
DATE	14.5.92	SITE	Kentish Town Bridge
SORTER	BAW	SAMPLE CODE	NRA01 0868 R04BFDEB026
AQC OF BM	WP FAMILIES A. IN VIAL	+ I	B. IN SAMPLE +

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 Physidae	2 Scirtidae

B SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	3 Valvatidae 4 Baetidae 5 Hydrophilidae

NET LOSSES

NE.

1

NET GAINS

· 4

1 Succinea sp. in vial 2 Elodes sp. (larva) 3 Valvata cristata 4 Cloeon dipterum 1 only 5 Anacaena globulus (adult) 1 only

RF. - WARDER BY AND A CONTRACT OF A

NOTES:

REGION	Anglian	RIVER	Wendling Beck	
DATE	10.6.92	SITE	Beetley Bridge	
SORTER	ET	SAMPLE CODE	NRA01 0785	
AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +				

 A
 VIAL
 BMWP FAMILIES NOT FOUND BY IFE
 ADDITIONAL FAMILIES FOUND BY IFE

 Differences between:
 i) BMWP families listed on sample data sheet and
 1 Chironomidae*
 None

 ii) BMWP families found in VIAL by IFE
 1 Chironomidae
 None
 None

в	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
•	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Physidae 3 Caenidae 4 Hydrophilidae 5 Chironomidae*

NET LOSSES

ES | 0 |

NET GAINS

- - 4

NOTES:

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2 Physa fontinalis 1 only

3 Caenis luctuosa/macrura

4 Indet Hydrophilid larvae

5 Tanypodinae, Orthocladiinae, Chironomini

3

REGION	Anglian	RIVER	Blackwater	
DATE	9.6.92	SITE	Greys Mill	
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFBL0350	
AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +				

 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	, SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed	(This box only completed when no vial is supplied with sample)	1 Dendrocoelidae 2 Hydroptilidae

NET LOSSES

0

NET GAINS

2

1 Dendrocoelum lacteum 1 only 2 Hydroptila sp. (pupa) 1 only

NOTES:

Note on label in vial that Planariidae "seen on site but not recovered in sample". Not found by IFE in vial but Dugesia tigrina and D.polychroa/lugubris found in sample.

REGION	Anglian	RIVER	Elstow Brook
DATE	12.5.92	SITE	Hardwick Bridge
SORTER	JN	SAMPLE CODE	NRA01 R02BF12M14
AQC OF BM	WP FAMILIES A. IN VIAL	(+) I	B. IN SAMPLE +

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		l Piscicolidae

В	C MDI E	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Erpobdellidae
ľ	VOTES:	NET LOSSES 0	NET GAINS 2

1 Piscicola geometra 2 Erpobdella octoculata 1 only Labels in vial say "Lymnaeidae" and "Calopterygidae". Lymnaea peregra and Calopteryx splendens found by IFE in sample.

REGION	Anglian	RIVER	Old West
DATE	22.6.92	SITE	Smithy Fen Farm
SORTER	SEH	SAMPLE CODE	NRA01 R0235M27
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AQC OF BMWP FAMILIES A. IN VIAL

NOTES:

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		2 Psychomyiidae

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		3 Dendrocoelidae 4 Physidae 5 Ancylidae 6 Caenidae 7 Hydrophilidae 8 Elmidae 9 Hydroptilidae 10 Molannidae

NET LOSSES

ES 1

NET GAINS 9

2 Tinodes waeneri7 Indet Hydrophilid (larva) 1only3 Dendrocoelum lacteum8 Oulimnius rivularis (adult + larva)4 Physa fontinalis9 Agraylea multipunctata, Hydroptila sp5 Acroloxus lacustris 1 only10 Molanna angustata6 Caenis robustaLabel in vial says "Unionidae + Aeshnidae". Anodonta sp. andAeshna sp. found by IFE in sample.

REGION	Anglian	RIVER	Ouse
DATE	3.6.92	SITE	Harrold Bridge
SORTER	TNA	SAMPLE CODE	NRA01 R02BF11M09

AQC OF BMWP FAMILIES A. IN VIAL

NOTES:

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B. IN SAMPLE

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		3 Chironomidae

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		<pre>4 Valvatidae 5 Planorbidae 6 Unionidae 7 Asellidae* 8 Baetidae* 9 Aphelocheiridae 10 Haliplidae 11 Hydroptilidae 12 Molannidae</pre>

NET LOSSES

0

NET GAINS 8

3 Chironomini in vial, Tanypodinae, Orthocladiinae, Prodiamesinae in sample
4 Valvata cristata 1 only
5 Armiger crista
10 Haliplus sp. (larva) 1 only
6 Anodonta sp.
11 Hydroptila sp.
7 Asellus aquaticus
12 Molanna angustata
8 Centroptilum luteolum 1 only
9 Aphelocheirus aestivalis (nymph) 1 only

REGION	Anglian	RIVER	Ouse
DATE	3.6.92	SITE	A428 Road Bridge, Turvey
SORTER	TNA	SAMPLE CODE	NRA01 R02BF11M08
AQC OF BMV	WP FAMILIES A. IN VIAL	(+) E	3. IN SAMPLE +

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 Physidae 2 Elmidae*	3 Planariidae 4 Baetidae

В		BMWP FAMILIES NOT FOUND BY 1FE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		5 Ephemerellidae 6 Elmidae*
N	NOTES:	NET LOSSES 1	NET GAINS 3

3 Polycelis nigra/tenuis
4 Indet Baetid (juvenile, not Baetis) in vial, Baetis sp. (head +
thorax) in sample
5 Ephemerella ignita
6 Oulimnius sp. (larva) 1 only

REGION	Anglian	RIVER	Stainfield Beck
DATE	9.10.92	SITE	Stainfield
SORTER	PMW	SAMPLE CODE	NRA01 R03BFSTAI1305
		 1	

AQC OF BMWP FAMILIES A. IN VIAL

+ B. IN SAMPLE +

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	1 Tipulidae*	None

В	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed	(This box only completed when no vial is supplied with sample)	2 Piscicolidae 3 Tipulidae*

NOTES:	NET LOSSES	0	NET GAINS	1
2 Piscicola geometra 1 only 3 Tipula montium group				

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REGION	Anglian	RIVER	Wittering Brook	
DATE	7.9.92	SITE	Sacrewell Mill]
SORTER	RPC	SAMPLE CODE	NRAO1 RO5BFWITB1305]
		()		

AQC OF BMWP FAMILIES A. IN VIAL

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11	
1 1	

B. IN SAMPLE +

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

в	SAMDLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
•	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Coenagriidae 2 Haliplidae 3 Simuliidae

NOTES: NOTES: NOTES: NOTES: NOTES: NOTES: NET LOSSES NET GAINS Haliplus sp. (juvenile) 1 only Haliplus sp. (larvae) Simulium ornatum group NET GAINS NET

REGION	Anglian	RIVER	Legsby Beck
DATE	9.10.92	SITE	Snelland
SORTER	PMW	SAMPLE CODE	NRA01 R03BFLEGS1105
		<u> </u>	Francis

AQC OF BMWP FAMILIES A. IN VIAL

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+ B. IN SAMPLE +

A		BMWP FAMILIES NOT	ADDITIONAL FAMILIES
	VIAL	FOUND BY IFE	FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		None

В	SAMDI E	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Piscicolidae 3 Gammaridae 4 Coenagriidae

NET LOSSES

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1

NET GAINS

:

2 Piscicola geometra 1 only

NOTES:

3 Gammarus pulex 1 only

4 Indet Coenagriid (juvenile) 1 only

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3

REGION	Anglian	RIVER	Old Ancholme
DATE	30.9.92	SITE	Brigg
SORTER	SJB	SAMPLE CODE	NRA01 R03BFANC0030B
AQC OF BMV	WP FAMILIES A. IN VIAL	+ 1	B. IN SAMPLE +

 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 Valvatidae*
 None

в	SAMDLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	3 Valvatidae* 4 Sphaeriidae* 5 Elmidae 6 Hydroptilidae

NET LOSSES

0

NET GAINS

2

NOTES:

3 Valvata piscinalis

4 Pisidium sp., Sphaerium sp.

5 Oulimnius sp. (larva) 1 only

6 Agraylea multipunctata

Note on data sheet that Viviparidae & Unionidae "individuals thrown back - not in sample" and Limnephilidae "seen in field, not in pot". None of these families found by IFE in vial or sample.

REGION	Anglian	RIVER	Alma Beck
DATE	8.9.92	SITE	Ditchingham Bridge
SORTER	ET	SAMPLE CODE	NRA01 0829

AQC OF BMWP FAMILIES A. IN VIAL

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B. IN SAMPLE +

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	1	None

В	SANDI E	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		<pre>2 Dendrocoelidae 3 Hydroptilidae* 4 Leptoceridae 5 Simuliidae</pre>

NET LOSSES

.

0

NET GAINS

3

2 Dendrocoelum lacteum 1 only

- 3 Hydroptila sp. (larvae + pupae)
 4 Athripsodes cinereus, Mystacides azurea
 5 Simulium aureum group

NOTES:

REGION	Anglian	RIVER	Wittering Brook
DATE	7.9.92	SITE	A47 Bridge
SORTER	RPC	SAMPLE CODE	NRA01 R05BFWITB140A
AQC OF BM	VP FAMILIES A. IN VIAL	+	B. IN SAMPLE +

 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	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Planariidae 2 Hydrobiidae 3 Leuctridae 4 Hydrophilidae 5 Hydroptilidae

NOTES: NOTES: 1 Polycelis nigra/tenuis 1 only 2 Potamopyrgus jenkinsi 3 Leuctra fusca 1 only 4 Anacaena globulus (adult) 1 only 5 Hydroptila sp. 1 only

REGION	Anglian	RIVER	Ancholme
DATE	8.9.92	SITE	Bishopbridge
SORTER	LJS	SAMPLE CODE	NRA01 R03BFANCHN060B
AQC OF BM	WP FAMILIES A. IN VIAL	+ 1	B. IN SAMPLE +

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BMWP FAMILIES NOT ADDITIONAL FAMILIES A VIAL FOUND BY IFE FOUND BY IFE Differences between: 1 Gammaridae* None i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE

B	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
Differences betwee i) BMWP families l	isted when no vial is sheet supplied with sample) ound	2 Gammaridae* 3 Simuliidae

NET LOSSES

0

NET GAINS

1

2 Crangonyx pseudogracilis 3 Simulium erythrocephalum 1 only

NOTES:

Note on data sheet that Unionidae "not in vial". Not found by IFE in vial or sample.

REGION	Anglian	RIVER	Harrowden Brook
DATE	28.10.92	SITE	Rixon Road
SORTER	LJS	SAMPLE CODE	NRA01 R05BFHARR050R
AQC OF BM	WP FAMILIES A. IN VIAL	(+) I	3. IN SAMPLE +

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Glossiphoniidae 3 Dytiscidae
		· · · · · · · · · · · · · · · · · · ·	-

NOTES: NOTES:	SSES 1	NET	GAINS	2
1 Small terrestrial snail with sini 2 Glossiphonia complanata 1 only 3 Platambus maculatus (larva) 1 onl		l in vial		<u> </u>

REGION	Anglian	RIVER	Brampton Branch
DATE	21.10.92	SITE	A50 Broughton Crossing
SORTER	PMW	SAMPLE CODE	NRA01 R05BFBRAM120B

AQC OF BMWP FAMILIES A. IN VIAL

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+		

B. IN SAMPLE

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	2 Planorbidae 3 Coenagriidae 4 Dryopidae

NET LOSSES 1 NET GAINS 3 NOTES: 2 Armiger crista, Gyraulus albus 3 Indet Coenagriid (juvenile) 1 only 4 Dryops sp. (larva) 1 only Assumed that Astacidae returned to river

REGION	Anglian	RIVER	Sywell Brook
DATE	28.10.92	SITE	Sywell
SORTER	LJS	SAMPLE CODE	NRA01 R05BFSYWB020S
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AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	1	1 Psychomyiidae

NET LOSSES 0 NET GAINS 1

NOTES:	L		
1 Lype sp.1 only			

REGION	Anglian	RIVER	Tham
DATE	20.10.92	SITE	Little Bytham
SORTER	RPC	SAMPLE CODE	NRA01 R05BFTHAM200L
		1	

AQC OF BMWP FAMILIES A. IN VIAL +

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B. IN SAMPLE

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	i) BMWP families listed	(This box only completed when no vial is supplied with sample)	3 Piscicolidae 4 Sericostomatidae* 5 Chironomidae*

NOTES: NOTES: 3 Piscicola geometra 1 only

REGION	Anglian	RIVER	South Forty Foot Drain
DATE	20.10.92	SITE	Donnington Bridge
SORTER	LJS	SAMPLE CODE	NRA01 R03BFSFFD110D

AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +

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

B	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		None

NET GAINS NET LOSSES 1 0 NOTES: 1 Empty shell in vial

REGION	Anglian	RIVER	Ousemere Lode
DATE	20.10.92	SITE	u/s South Forty Foot
SORTER	LJS	SAMPLE CODE	NRA01 R03BFOUSE120S
AQC OF BM	NP FAMILIES A. IN VIAL	+ I	B. IN SAMPLE +

B. IN SAMPLE +

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 Hydrometridae	None

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	i) BMWP families listed	(This box only completed when no vial is supplied with sample)	2 Valvatidae 3 Physidae 4 Elmidae

NET LOSSES

1

NET GAINS

3

NOTES:

2 Valvata piscinalis 1 only 3 Physa fontinalis 1 only

4 Oulimnius sp. (larva) 1 only

REGION	Anglian	RIVER	West Glen
DATE	20.10.92	SITE	Little Bytham
SORTER	RPC	SAMPLE CODE	NRA01 R05BFGLEN200L
SORTER			

AQC OF BMWP FAMILIES A. IN VIAL

+	
1	

B. IN SAMPLE +

A	,	BMWP FAMILIES NOT	ADDITIONAL FAMILIES
	VIAL	FOUND BY IFE	FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE		None

В	SAMOLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	i) BMWP families listed	(This box only completed when no vial is supplied with sample)	2 Planariidae 3 Simuliidae*

NET LOSSES

0

NET GAINS

1

2 Dugesia lugubris/polychroa 1 only

3 Simulium ornatum group 1 only

NOTES:

REGION	Anglian	RIVER	Nene
DATE	21.10.92	SITE	Nunn Mills Road Bridge
SORTER	PMW	SAMPLE CODE	NRA01 R05BFNENE110N
		 1	I 1

AQC OF BMWP FAMILIES A. IN VIAL

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1		- 1	

B. IN SAMPLE +

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		2 Physidae

В	CAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		3 Planariidae 4 Planorbidae 5 Erpobdellidae 6 Baetidae

NET LOSSES

1

NET GAINS

5

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_ Z E	nysa	acuta/heterostropha	
3 b	· · · · · · ·	. In the last a local brack as a	n

- 3 Dugesia lugubris/polychroa, D.tigrina
- 4 Armiger crista

NOTES:

- 5 Indet Erpobdellid (juvenile) 1 only
- 6 Baetis vernus 1 only

REGION	Anglian	RIVER	Chilton Brook
DATE	10.12.92	SITE	Folly Road Bridge
SORTER	CAF	SAMPLE CODE	NRA01 R01BFST0942
AQC OF BM	WP FAMILIES A. IN VIAL	+ I	B. IN SAMPLE +

B. IN

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

B	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Sphaeriidae 2 Hydropsychidae

NET LOSSES

0

NET GAINS

2

1 Pisidium sp.

NOTES:

2 Hydropsyche siltalai 1 only

REGION	Anglian	RIVER	Boreham Brook
DATE	9.12.92	SITE	Boreham Hall Road
SORTER	CAF	SAMPLE CODE	NRA01 BFCHO276

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AQC OF BMWP FAMILIES A. IN VIAL

B. IN SAMPLE

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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	P	None

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Hydrobiidae 2 Sphaeriidae 3 Caenidae 4 Haliplidae

NOTES: NOTES: NOTES: NOTES: NOTES: NOTES: NET GAINS 4 Potamopyrgus jenkinsi 1 only Pisidium sp. Caenis luctuosa group 1 only Haliplus lineatocollis (adult) 1 only

REGION	Anglian	RIVER	Stour
DATE	10.12.92	SITE	Baythorne End Bridge
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFST1008
		— —–	

AQC OF BMWP FAMILIES A. IN VIAL +

в.	IN	SAMPLE	+

a.

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Sphaeriidae
ľ	NOTES:	NET LOSSES 0	NET GAINS 1

1 Sphaerium sp. 1 only

REGION A	Anglian	RIVER	Stour
DATE 1	0.12.92	SITE	Stoke College Floodgates
SORTER C	CAF	SAMPLE CODE	NRA01 R01BFST1002

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AQC OF BMWP FAMILIES A. IN VIAL

B. IN SAMPLE	ł
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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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Polycentropodidae*

NOTES: 0 NET GAINS 0

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REGION	Anglian	RIVER	Stour
DATE	10.12.92	SITE	Little Thurlow Church Bridge
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFST1518

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AQC OF BMWP FAMILIES A. IN VIAL

B. IN SAMPLE +

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

B	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Caenidae*

NET LOSSES

ES 0

NET GAINS

0

2 Caenis luctuosa/macrura

NOTES:

Note on data sheet that Planorbidae "seen on site". Anisus vortex found by IFE in sample.

REGION	Anglian	RIVER	Blackwater
DATE	9.12.92	SITE	Wickham Mill Bridge
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFBL0160
AQC OF BM	WP FAMILIES A. IN VIAL	+ I	3. IN SAMPLE +

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

	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	1 Limnephilidae

NET LOSSES

ES 0

NET GAINS

1

1 Halesus sp. 1 only

NOTES:

Note on data sheet that Ancylidae "put in sample but not recovered". Not found by IFE in vial or sample.

REGION	Anglian	RIVER	Waveney
DATE	22.9.92	SITE	Beccles Yacht Station
SORTER	BAW	SAMPLE CODE	NRA01 0835 (R04BFWAV160)
AQC OF BM	WP FAMILIES A. IN VIAL	(+) E	3. IN SAMPLE +

Α 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	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Lymnaeidae 2 Planorbidae 3 Ancylidae 4 Elmidae
	IOTES .	NET LOSSES 0	NET GAINS 4

2 3	Lymnaea peregra Gyraulus albus Acroloxus lacus Oulimnius sp.	1 only stris 1 only		

NOTES:

REGION	Anglian	RIVER	Stour
DATE	10.12.92	SITE	Sipsey Bridge
SORTER	РЈМ	SAMPLE CODE	NRA01 R01BFST1523
AQC OF BMW	WP FAMILIES A. IN VIAL	[+] I	B. IN SAMPLE +

 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	C MDI E	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Hydrobiidae 2 Chironomidae
			

NOTES: NOTES: 1 Potamopyrgus jenkinsi 1 only 2 Orthocladiinae, Chironomini

REGION	Anglian	RIVER	Glaven
DATE	21.10.92	SITE	Wiveton Bridge
SORTER	ET	SAMPLE CODE	NRA01 0741
AQC OF BM	VP FAMILIES A. IN VIAL	(+) I	B. IN SAMPLE +

 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		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	1 Oligochaeta 2 Hydropsychidae '

NET LOSSES

0

NET GAINS

S 2

.

NOTES:

1 Tubificidae 2 Hydropsyche siltalai 1 only

REGION	Anglian	RIVER	Wensum		
DATE	29.9.92	SITE	Sculthorpe Mill		
SORTER	BAW	SAMPLE CODE	NRA01 0776 (R04BFWEN040)		
AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +					

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

E	_	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	i) BMWP families listed	(This box only completed when no vial is supplied with sample)	1 Planariidae 2 Piscicolidae 3 Asellidae 4 Ephemerellidae 5 Caenidae 6 Leuctridae 7 Coenagriidae 8 Haliplidae
		. []	· · · · · · · · · · · · · · · · · · ·

NOTES:	NET LOSS	ES 0	NET GAINS	8
1 Polycelis nigra/tenuis 1 2 Piscicola geometra 1 onl 3 Asellus aquaticus 1 only 4 Ephemerella ignita 1 onl 5 Caenis luctuosa/macrura 6 Leuctra fusca 7 Ischnura elegans 1 only 8 Brychius elevatus (larva	y y	lineatocollis	s (adult + larv	a)

REGION	Anglian	RIVER	Виге
DATE	21.10.92	SITE	Moor Hall Ford
SORTER	ET	SAMPLE CODE	NRA01 1045 (BFBUR010)
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AQC OF BMWP FAMILIES A. IN VIAL

NOTES:

+	

B. IN SAMPLE +

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	1 Hydrobiidae* 2 Chironomidae*	None

В	CAROLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		3 Hydrobiidae* 4 Planorbidae 5 Sphaeriidae 6 Heptageniidae 7 Gyrinidae 8 Scirtidae 9 Rhyacophilidae 10 Chironomidae*

NET LOSSES

0

NET GAINS

б

1,3 Empty shell in vial, Potamopyrgus jenkinsi in sample
4 Anisus vortex 1 only
5 Pisidium sp.
6 Heptagenia sulphurea 1 only
7 Orectochilus villosus (larva) 1 only
8 Elodes sp. (larva) 1 only
9 Rhyacophila sp. (juvenile), Agapetus sp.
10 Prodiamesinae, Orthocladiinae, Chironomini, Tanytarsini

REGION	Anglian	RIVER	Burn
DATE	21.10.92	SITE	Roys Mill, Burnham Overy
SORTER	ET .	SAMPLE CODE	NRA01 0728 (BFBRN040)

AQC OF BMWP FAMILIES A. IN VIAL

+

B. IN SAMPLE +

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	1	1 Valvatidae 2 Sphaeriidae 3 Hydroptilidae 4 Tipulidae 5 Simuliidae
I	NOTES:	NET LOSSES 0	NET GAINS 5

1 Valvata cristata 2 Pisidium sp. 3 Oxyethira sp. 4 Pilaria (Neolimnomyia) sp. 1 only 5 Simulium aureum group

REGION	Anglian	RIVER	Binham Tributary
DATE	29.9.92	SITE	Binham Ford (R.Stiffkey)
SORTER -	BAW	SAMPLE CODE	NRA01 0736 (R04BFSTF070)
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AQC OF BMWP FAMILIES A. IN VIAL

+ B. IN SAMPLE +

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Piscicolidae 2 Erpobdellidae

NOTES: NOTES: 1 Piscicola geometra 1 only 2 Erpobdella octoculata 1 only

REGION	Anglian	RIVER	Witham
DATE	21.9.92	SITE	Langrick Bridge
SORTER	PMW	SAMPLE CODE	NRAO1 RO3BFWITH770L
		F	<u> </u>

AQC OF BMWP FAMILIES A. IN VIAL

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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	5	None

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Lymnaeidae 2 Baetidae 3 Hydroptilidae 4 Leptoceridae

NET GAINS NET LOSSES 0 4 NOTES: 1 Lymnaea peregra 2 Cloeon dipterum 1 only 3 Agraylea multipunctata 4 Mystacides nigra/longicornis

REGION	Anglian	RIVER	Burwell Lode
DATE	13.10.92	SITE	Upware Lock
SORTER	SEH	SAMPLE CODE	NRA01 R02BF34M13
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AQC OF BMWP FAMILIES A. IN VIAL

+ B. IN SAMPLE +

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 Oligochaeta

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		2 Ancylidae 3 Elmidae 4 Psychomyiidae

NET LOSSES

0

NET GAINS

4

1 Naididae, Tubificidae

NOTES:

2 Acroloxus lacustris

3 Oulimnius rivularis (adult + larvaa)

4 Tinodes waeneri

REGION	Anglian	RIVER	Thet
DATE	28.9.92	SITE	Westcar Bridge, Attleborough
SORTER	SEH	SAMPLE CODE	NRA01 R02BF44M02
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AQC OF BMWP FAMILIES A. IN VIAL

+ B. IN SAMPLE +

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

В		BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Ancylidae

NOTES: 0 NET GAINS 1

REGION	Anglian	RIVER	Cam
DATE	13.10.92	SITE	Dimmocks Cote
SORTER	SEH	SAMPLE CODE	NRA01 R02BF34M02
			

AQC OF BMWP FAMILIES A. IN VIAL

+ B. IN SAMPLE +

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

В	CANDLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Ancylidae 2 Leptoceridae

NET LOSSES NET GAINS 0 2 NOTES: 1 Acroloxus lacustris 1 only 2 Oecetis ochracea 1 only

REGION	Anglian	RIVER	Grand Union Canal
DATE	21.9.92	SITE	Grafton Road, Ashton
SORTER	TNA	SAMPLE CODE	NRA01 R02BF04M27

AQC OF BMWP FAMILIES A. IN VIAL

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		3 Platycnemididae

B	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
i) BMWP families listed	(This box only completed when no vial is supplied with sample)	4 Valvatidae 5 Asellidae 6 Caenidae 7 Corixidae*

NET LOSSES 1 NET GAINS 4 NOTES: 3 Platycnemis pennipes 4 Valvata piscinalis 1 only 5 Asellus aquaticus 6 Caenis luctuosa/macrura 1 only 7 Sigara dorsalis

REGION	Anglian	RIVER	Abbotsley Brook
DATE	14.9.92	SITE	Warsley
SORTER	TNA	SAMPLE CODE	NRA01 R02BF20M14

- AQC OF BMWP FAMILIES A. IN VIAL + B. IN SAMPLE +

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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

В	S MELE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		None

NET LOSSES 0 NET GAINS 0 NOTES:

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REGION	Anglian	RIVER	Melsop Stallard
DATE	28.9.92	SITE	B1077 Bridge, Castor
SORTER	SEH	SAMPLE CODE	NRA01 R02BF44M33
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AQC OF BMWP FAMILIES A. IN VIAL

+	
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B. IN SAMPLE +

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

В	C M CL E	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE		1 Sphaeriidae 2 Erpobdellidae 3 Elmidae 4 Hydroptilidae 5 Tipulidae
		X	

NOTES: NOTES: 1 Pisidium sp. 2 Erpobdella octoculata 1 only 3 Elmis aenea, Oulimnius sp. (larvae) 4 Oxyethira sp. 5 Dicranota sp. 1 only

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