

An audit of performance in the analysis of biological samples in 1995 NRA Anglian Region: Primary Audit

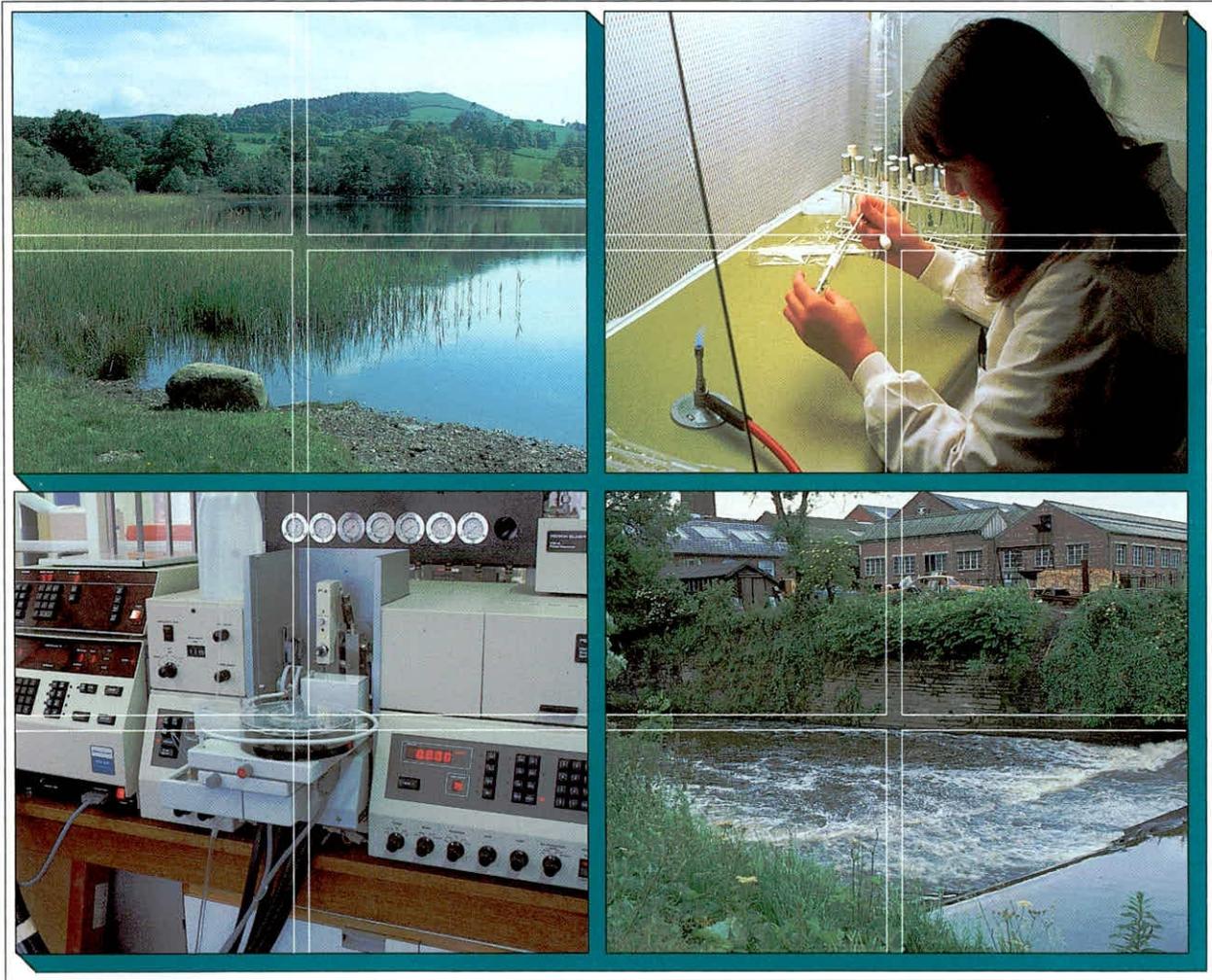
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1. INTRODUCTION

The 1995 General Quality Assessment (GQA) Survey included the sampling of aquatic macro-invertebrates for biological assessment of river quality throughout the United Kingdom. In England and Wales the survey was undertaken by the National Rivers Authority (NRA), the River Purification Boards (RPBs) sampled in Scotland, the Industrial Research and Technology Unit (IRTU) undertook the work in Northern Ireland and the Government Laboratory covered the Isle of Man (IOM).

The majority of sites surveyed were sampled in two seasons, spring and autumn. Standard collection procedures were used and the sampling strategy was compatible with RIVPACS (River InVertebrate Prediction And Classification System), a computer model developed by the Institute of Freshwater Ecology (IFE).

Samples were sorted for the families of macro-invertebrates included in the Biological Monitoring Working Party (BMWP) system. Taxa present were recorded on site data sheets. Although attempts had been made to standardise sample processing and recording techniques, these did vary somewhat from region to region.

In order to undertake this massive programme of fieldwork and sample processing, a large number of staff, many of whom were relatively inexperienced, were employed by the surveying agencies. In view of the number of staff involved and the variability of sample processing techniques, it was recognised that a quality assurance exercise was necessary to minimise and quantify errors. Each laboratory appointed at least one experienced analyst to act as an internal analytical quality control (AQC) checker. For most agencies, these checkers re-sorted about 10% of the laboratory's samples, those samples chosen for re-sorting being selected at random. In addition, IFE was contracted to undertake an independent, external audit of the quality of the laboratory analysis of biological samples for each NRA region, each RPB, IRTU and IOM. This commission was consistent with the audit performed by IFE for the National River Quality Survey in 1990 and for the routine biological monitoring of river sites each year between 1991 and 1994. This audit was originally intended as a measure of the quality of the AQC analyses and is termed the main audit or AQC audit. The data collected for the 1995 GQA Survey was not adjusted for errors identified by either of the quality assurance procedures. Therefore the NRA contracted IFE to subject their samples to a further audit of the primary analysis (the primary audit) to provide an independent assessment of the quality of the Survey data .

This report presents the results of the 60 samples audited for NRA Anglian Region and represents a measure of the performance of the primary analyst rather than that of the AQC analyst. The results of the AQC Audit, detailing the performance of the biologists who analysed the 33 AQC'd samples for the Region, are reported separately.

2. SAMPLE SELECTION

Samples for audit were selected internally by each of the agencies being monitored. The number of samples selected for audit varied between the different agencies and the biologists processing these samples had no prior knowledge of which samples were to be audited. Some agencies only sent to IFE samples that had been processed twice. Others adopted a random selection process, whereby some samples had been analysed just once and some had been re-sorted. 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, IRTU and IOM 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 data sheet containing 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, without reference to the data sheet or to the vial of animals, and the BMWP families identified.
- b) The families contained within the vial were identified.
- c) A comparison was made between the listing of families and those found in the sample by IFE.
- d) A comparison was made between the listing of families and those identified from the vial by IFE.
- e) "Losses" or "gains" from the original 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. Single representatives of a "gained" taxon were noted as such.
- f) An error code, selected from a list on the result sheet, was assigned by the IFE auditor for each "loss" or "gain".

Occasionally a sample did not include a vial containing representative examples of the families listed on the data sheet, while some arrived with the vial damaged in transit such that the representative specimens were no longer separated. For these samples, only operations a), c), e) and f) above were appropriate.

Several directives were issued to IFE relating to the treatment of BMWP taxa. Every taxon recorded on the data sheet must be supported by a voucher specimen of that family in the vial (or, for very large specimens, left in the sample). The only exceptions to this rule were the native crayfish, *Austropotamobius pallipes*, the medicinal leech, *Hirudo medicinalis* and the pearl mussel, *Margaritifera margaritifera* (which does not belong to a BMWP family), all of which are protected species. Where possible, IFE gave the benefit of doubt to the analyst in cases of the "loss" of Planariidae, specimens of which have been known to disintegrate in preservative. Animals deemed to have been dead at the time of sampling, cast insect skins, pupal exuviae and empty mollusc shells were to be excluded from the listing of families present. Isolated posterior ends of "living" specimens were not acceptable as records of a taxon. In these cases, thorax plus abdomen was deemed acceptable but abdomen only was deemed unacceptable. Terrestrial representatives of BMWP scoring families were also to be excluded from the audit. For this reason, Clambidae, Chrysomelidae and Curculionidae, which appear in the BMWP list, were excluded for the purposes of the audit since most representatives of these families are, at best, only semi-aquatic. 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 and sent to the Regional Biologist. Copies of these report forms are presented in the Appendix. For audit samples where a vial of animals was included, the comparison between the listing of families and the taxa found in the vial by IFE was shown in the section of the report form headed "VIAL". Discrepancies could be due to carelessness, misidentifications or errors in completing the data sheet listing the families present. Families not on the listing but found by IFE in the remainder of the sample were entered in the section of the report form headed "SAMPLE" under "Additional BMWP taxa found by IFE". Taxa recorded here represent families missed by the analyst(s) on sorting the sample. When the families listed as "losses" in the first section 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 both as "losses" from the vial and as "gains" from the sample 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".

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 centre section of the report form under "species name".

IFE was asked to interpret each error to provide a possible cause. An error code, selected from a list of options at the foot of each result sheet, was entered against each taxon in the column headed "Presumed cause of error".

For those samples in which the vial of animals was damaged or missing, the "VIAL" sections of the report form were not applicable (N/a). Families not on the list but present in the sample were entered in the section under "SAMPLE" : "Additional taxa" as before. Families recorded on the list but not found by IFE were indicated in the section above this. If 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.

The final section of the result sheet summarises the audit, giving details of the numbers of "losses", "gains" and "omissions", together with the net effects on BMWP score and the number of scoring taxa.

5. RESULTS

The results of the Primary audit for Anglian Region are summarised by area in Tables 1 to 3. Table 4 displays the statistics of these regional audit results centered around the target of acceptability of no more than two missed taxa per sample. These data are presented for each analyst, for their Area laboratories and for the Region as a whole. Table 5 compares these results for each NRA Region and Area laboratory. Table 6 presents data for Anglian Region for the net effects of the Primary audit on the BMWP score and number of taxa. This table is again based on the target of no more than two missed taxa per sample. The figure of 13 for an acceptable underestimate of BMWP score is based on twice the average score of all taxa in the BMWP listing (excluding Clambidae, Chrysomelidae and Curculionidae, which are excluded from the audit). This average score is 6.57. Table 7 compares this BMWP data for each NRA Region and Area laboratory. Table 8 lists the taxa missed in sorting by Anglian Region's primary analysts in the 1995 audit. A listing of all such taxa for the entire 1995 audit (Primary and AQC Audits for NRA regions and Main Audit for other organisations) for the whole of the UK is presented in the AQC audit report.

6. ACKNOWLEDGEMENTS

Grateful thanks to John Murray-Bligh of NRA Thames Region, who provided an invaluable service in the development and implementation of improved methodology and in providing helpful advice throughout.

Table 1. The 20 samples audited for Central Area

River	Site	Primary Analyst	Losses	Gains	Omissions
SPRING					
Wretham Park Spring Stream	B1111 Bridge	ABA	1	4	1
Broughton Brook	Broughton Gauge	SEH	1	3	0
Wissey	Necton Bridge	SJL	0	2	1
Wissey	Linghills Farm	SJL	0	1	0
Middle Level Main Drain	Mullicourt Priory	SJL	1	1	0
Counter Drain	Salters Lode	SJL	0	0	2
AUTUMN					
Hiz	Cadwell Arch	ABA	0	2	0
Cottenham Lode	Smithy Fen Bridge	ABA	0	2	0
Willingham Lode	Willingham Culvert Recreation Ground	ABA	0	2	0
Forty Foot	Carters Bridge	ABA	1	2	1
Sapiston	Broadgrass Green	ABA	0	5	0
High Lode	d/s Ramsey STW	LJS	1	1	0
Counter Drain	Welches Dam	LJS	0	4	0
Cranbrook Drain	Colnefen Farm	LJS	1	1	0
Marley Gap Brook	Stocks Bridge	SEH	1	5	1
Bromham Brook	Bromham	SEH	0	2	0
Great Ouse	Eaton Socon Mill	SEH	0	2	1
Claydon Brook	Addington	SEH	0	1	0
Little Ouse	Blo Norton Ford	SEH	0	0	0
Middleton Stop Drain	Middleton Towers	WTC	1	5	0

Table 2. The 20 samples audited for Eastern Area

River	Site	Primary Analyst	Losses	Gains	Omissions
SPRING					
Ant	East Rushton	CSA	0	3	0
Hempnall Beck	Tasburgh Hall Ford	CSA	1	5	0
Stiffkey	East Barsham Bridge	CSA	0	6	0
Butley Creek	Low Corner	EDT	0	2	0
Bucklesham Mill	Ipswich Intake	EDT	1	2	0
Burn	South Creake Bridge	EDT	0	4	0
Mar Dyke	Stifford G.S.	EDT	0	1	0
Ter	Crabbs Bridge	FCE	0	1	0
Brett	Bildeston Bridge	FCE	0	4	0
Wang	A145 Bridge	JMG	0	1	0
AUTUMN					
Fromus	Gromford	CSA	0	5	0
Box	Boxford Bypass	EDT	0	4	0
Ore	u/s Framlingham STW	EDT	0	1	0
Blyth	A144 Bridge	EDT	0	4	0
Rattlesden	Burford Bridge	EDT	0	3	0
Wid	Whites Bridge	JMG	0	1	0
Gipping	Bridge Farm	LKB	1	0	0
Rattlesden	u/s Confluence ICI	LKB	0	3	0
Wensum	Hellesdon Mill	LKB	0	5	0
Brain	u/s Braintree STW	LKB	1	2	0

Table 3. The 20 samples audited for Northern Area

River	Site	Primary Analyst	Losses	Gains	Omissions
SPRING					
Buck Beck	A1031 Bridge	CAE	0	1	0
Woldgrift Drain	Washdyke Bridge	DMB	0	2	0
Upper Witham	Little Ponton	DMB	0	2	0
Willow Brook	Apethorpe	LJS	0	0	0
Cross Drain	Six Score Farm	RPC	0	3	0
Welland	B1165 Bridge	RPC	1	1	0
(Coronation Cut)					
Hog Dyke	Old A605 Bridge	RPC	0	2	0
Nene	Irthlingborough	RPC	1	3	0
Lud	Louth Trout Farm	RPC	1	0	0
New Ancholme	Cadney	SJB	1	1	0
AUTUMN					
Willow Brook	A6116	DMB	0	3	0
Barlings Eau	Stainton Bridge	DMB	0	3	0
Bain	Dalderby	LJS	0	2	0
Town Drain	Old A16	LJS	0	0	0
Harpers Brook	u/s Brigstock STW	LJS	0	0	0
Glen	Tongue End	RPC	0	3	0
Willoughby High Drain	Hogsthorpe	RPC	0	0	0
Welland	Gretton Road Bridge	RPC	0	3	0
Ancholme	Bishopsbridge	SJB	0	3	0
Laceby Beck	Littlecoates	SJH	0	1	0

Table 4. Statistics of 1995 Primary Audit results for Anglian Region

Analyst/Group	n	Mean gains	Standard error	No. samples >2 gains	% samples >2 gains	Highest no. gains	Mean errors (l+g+o)	Standard error
Central	20	2.25	0.35	6	30.00	5	3.00	0.42
ABA	6	2.83	0.54	2	33.33	5	3.50	0.72
LJS*	3	2.00	1.00	1	33.33	4	2.67	0.67
SEH	6	2.17	0.70	2	33.33	5	2.83	1.01
SJL	4	1.00	0.41	0	0.00	2	2.00	0.41
WTC	1	5.00	n/a	1	100.00	5	6.00	n/a
Eastern	20	2.85	0.39	11	50.00	6	3.05	0.38
CSA	4	4.75	0.63	4	100.00	6	5.00	0.71
EDT	8	2.63	0.46	4	50.00	4	2.75	0.45
FCE	2	2.50	1.50	1	50.00	4	2.50	1.50
JMG	2	1.00	0.00	0	0.00	1	1.00	0.00
LKB	4	2.50	1.04	2	50.00	5	3.00	0.82
Northern	20	1.65	0.27	7	35.00	3	1.85	0.27
CAE	1	1.00	n/a	0	0.00	1	1.00	n/a
DMB	4	2.50	0.29	2	50.00	3	2.50	0.29
LJS*	4	0.50	0.50	0	0.00	2	0.50	0.50
RPC	8	1.88	0.48	4	50.00	3	2.25	0.45
SJB	2	2.00	1.00	1	50.00	3	2.50	0.50
SJH	1	1.00	n/a	0	0.00	1	1.00	n/a
*LJS moved from Northern Area to Central Area in October 1995.								
LBS combined data	7	1.14	0.55	1	14.29	4	1.43	0.57
Anglian Region	60	2.25	0.20	24	40.00	6	2.63	0.22
Whole of NRA	481	1.88	0.08	150	31.19	8	2.21	0.09

Table 5. Summary of errors found in 1995 Primary Audit for each NRA Laboratory

Region/Lab.	n	Mean gains	Standard error	No.samples >2 gains	% samples >2 gains	Highest no. gains	Mean errors (l+g+o)	Standard error
Anglian	60	2.25	0.20	24	40.00	6	2.63	0.22
Central	20	2.25	0.35	6	30.00	5	3.00	0.42
Eastern	20	2.85	0.39	11	50.00	6	3.05	0.38
Northern	20	1.65	0.27	7	35.00	3	1.85	0.27
N'umb & Yorks	60	1.52	0.20	12	20.00	6	1.68	0.21
South Yorkshire	27	1.44	0.28	5	18.52	6	1.63	0.29
Northumbria	17	1.12	0.26	2	11.76	3	1.29	0.31
Dales	16	2.06	0.50	5	31.25	6	2.19	0.51
North West	60	2.52	0.27	26	43.33	8	2.98	0.30
Northern	18	2.22	0.45	6	33.33	7	2.89	0.57
Central	20	2.35	0.44	8	40.00	7	2.70	0.51
Southern	22	2.91	0.51	12	54.55	8	3.32	0.51
Severn-Trent	61	1.84	0.22	18	29.51	8	1.23	0.27
Upper Severn	16	1.50	0.41	5	31.25	5	1.88	0.60
Lower Severn	13	1.85	0.52	4	30.77	5	2.46	0.63
Upper Trent	13	1.69	0.41	3	23.08	5	1.92	0.42
Lower Trent	19	2.21	0.43	6	31.58	8	2.58	0.50
Southern	60	1.33	0.19	10	16.67	7	1.77	0.21
Western	30	1.20	0.26	5	16.67	6	1.60	0.27
Eastern	30	1.47	0.28	5	16.67	7	1.93	0.33
South Western	60	1.52	0.21	16	26.67	6	1.63	0.23
Devon	16	1.56	0.33	5	31.25	4	1.63	0.35
Cornwall	15	1.27	0.42	3	20.00	5	1.33	0.45
North Wessex	13	0.92	0.29	1	7.69	3	0.92	0.29
South Wessex	16	2.19	0.52	7	43.75	6	2.50	0.58
Thames	60	2.05	0.22	22	36.67	7	2.43	0.24
Fobney Mead	30	2.43	0.32	16	53.33	6	2.97	0.35
Waltham Cross	30	1.67	0.29	6	20.00	7	1.90	0.29
Welsh	60	1.98	0.22	22	36.67	6	2.30	0.23
Northern	20	2.20	0.40	9	45.00	6	2.65	0.39
South Western	20	1.75	0.40	5	25.00	6	2.10	0.41
South Eastern	20	2.00	0.37	8	40.00	5	2.15	0.39
Whole of NRA	481	1.88	0.08	150	31.19	8	2.21	0.09

Table 6. Net effects of the Primary Audit on BMWP score and number of scoring taxa

Analyst/Group	n	Mean net effect on BMWP score	% of samples underestimated by score >13	Maximum underestimate of BMWP score	Mean net effect on no. of taxa	% of samples underestimated by >2 taxa	Maximum underestimate of no. of taxa
Central	20	9.45	30.00	24	1.85	25.00	5
ABA	6	13.83	50.00	6	2.50	33.33	5
LJS*	3	5.67	33.33	19	1.33	33.33	4
SEH	6	8.50	16.67	20	1.83	16.67	4
SJL	4	3.50	0.00	8	0.75	0.00	2
WTC	1	24.00	100.00	24	4.00	100.00	4
Eastern	20	14.35	55.00	37	2.65	55.00	6
CSA	4	25.50	75.00	37	4.50	100.00	6
EDT	8	13.00	62.50	23	2.50	50.00	4
FCE	2	16.50	50.00	23	2.50	50.00	4
JMG	2	4.50	0.00	6	1.00	0.00	1
LKB	4	9.75	50.00	21	2.00	50.00	5
Northern	20	7.15	20.00	18	1.45	30.00	3
CAE	1	5.00	0.00	5	1.00	0.00	1
DMB	4	10.75	0.00	13	2.50	50.00	3
LJS*	4	2.75	0.00	1	0.50	0.00	2
RPC	8	7.63	37.50	16	1.50	37.50	3
SJB	2	9.00	50.00	18	1.50	50.00	3
SJH	1	5.00	0.00	5	1.00	0.00	1
LJS* combined data	7	4.00	14.29	19	0.86	14.29	4
Anglian Region	60	10.32	35.00	37	1.98	35.00	6
Whole of NRA	481	9.56	28.90	52	1.65	27.86	8

Table 7. Net effects of the Primary Audit on BMWP score and number of scoring taxa for each NRA Area

Analyst/Group	n	Mean net effect on BMWP score	% of samples underestimated by score >13	Maximum underestimate of BMWP score	Mean net effect on no. of taxa	% of samples underestimated by >2 taxa	Maximum underestimate of no. of taxa
Anglian Region	60	10.32	35.00	37	1.98	35.00	6
Central	20	9.45	30.00	24	1.85	25.00	5
Eastern	20	14.35	55.00	37	2.65	55.00	6
Northern	20	7.15	20.00	18	1.45	30.00	3
N & Y Region	60	8.35	16.67	40	1.45	18.33	6
S. Yorkshire	27	7.33	14.81	35	1.37	18.52	6
Northumbria	17	5.41	5.88	20	1.00	5.88	3
Dales	16	13.19	31.25	40	2.06	31.25	6
N.West Region	60	13.03	41.67	49	2.18	40.00	8
Northern	18	12.50	44.44	33	1.83	33.33	5
Central	20	13.00	35.00	39	2.10	40.00	6
Southern	22	13.50	45.45	49	2.55	45.45	8
S-T Region	61	8.69	27.87	41	1.64	27.87	7
Upper Severn	16	8.44	25.00	33	1.31	25.00	4
Lower Severn	13	6.77	23.08	30	1.54	30.77	5
Upper Trent	13	9.23	23.08	41	1.62	23.08	5
Lower Trent	19	9.84	36.84	36	2.00	31.58	7
Southern Region	60	6.62	20.00	52	1.02	15.00	6
Western	30	5.33	13.33	32	0.90	13.33	6
Eastern	30	7.90	40.00	52	1.13	16.67	6
S.W.Region	60	8.43	30.00	35	1.42	23.33	6
Devon	16	9.25	37.50	28	1.50	25.00	4
Cornwall	15	7.87	26.67	35	1.20	30.00	5
N.Wessex	13	4.54	15.38	16	0.85	6.25	3
S.Wessex	16	11.31	37.50	33	2.00	37.50	6
Thames Region	60	9.18	26.67	47	1.78	31.67	7
Fobney Mead	30	11.00	40.00	47	2.10	46.67	6
Waltham Cross	30	7.37	13.33	42	1.47	16.67	7
Welsh Region	60	11.87	33.33	43	1.73	31.67	6
Northern	20	12.45	45.00	43	1.85	35.00	6
S.Western	20	9.45	20.00	37	1.40	20.00	6
S.Eastern	20	13.70	35.00	38	1.95	40.00	5
Whole of NRA	481	9.56	28.90	52	1.65	27.86	8

Table 8. Taxa missed by Anglian Region's primary analysts

Family	n	% of Anglian Region's missed taxa in Primary Audit	% of missed taxa in Primary Audit for all NRA Regions
Hydroptilidae	10	7.75	5.93
Planariidae (incl. Dugesiidae)	9	6.98	4.27
Elmidae	8	6.20	4.03
Caenidae	7	5.43	3.56
Sphaeriidae	7	5.43	4.63
Hydrobiidae (incl. Bithyniidae)	6	4.65	4.98
Leptoceridae	6	4.65	3.68
Lymnaeidae	5	3.88	2.49
Valvatidae	5	3.88	2.14
Asellidae	4	3.10	1.66
Simuliidae	4	3.10	2.73
Baetidae	3	2.33	2.25
Glossiphoniidae	3	2.33	1.66
Haliplidae	3	2.33	2.02
Hydrophilidae (incl. Hydraenidae)	3	2.33	5.46
Limnephilidae	3	2.33	2.61
Planorbidae	3	2.33	2.85
Psychomyiidae (incl. Ecnomidae)	3	2.33	2.85
Scirtidae	3	2.33	1.42
Tipulidae	3	2.33	2.25
Ancyliidae (incl. Acroloxidae)	2	1.55	1.66
Coenagriidae	2	1.55	0.71
Gammaridae (incl. Crangonyctidae)	2	1.55	0.95
Hydrometridae	2	1.55	0.95
Piscicolidae	2	1.55	1.90
Calopterygidae	1	0.78	0.47
Chironomidae	1	0.78	0.59
Corixidae	1	0.78	0.24
Corophiidae	1	0.78	0.47
Dendrocoelidae	1	0.78	1.07
Dryopidae	1	0.78	0.24
Ephemerellidae	1	0.78	1.54
Erpobdellidae	1	0.78	1.42

Table 8. (cont.)

Family	n	% of Anglian Region's missed taxa in Primary Audit	% of missed taxa in Primary Audit for all NRA Regions
Gerridae	1	0.78	0.24
Goeridae	1	0.78	1.78
Gyrinidae	1	0.78	1.19
Hydropsychidae	1	0.78	1.66
Leptophlebiidae	1	0.78	1.54
Libellulidae	1	0.78	0.36
Neritidae	1	0.78	0.24
Notonectidae	1	0.78	0.12
Physidae	1	0.78	0.83
Polycentropodidae	1	0.78	1.19
Rhyacophilidae (incl. Glossosomatidae)	1	0.78	0.83
Unionidae	1	0.78	0.47
Viviparidae	1	0.78	0.12

APPENDIX

Results of individual sample audits

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 27.4.95

WATER-COURSE: Wretham Park Spring Stream

PRIMARY ANALYST: ABA

AQC ANALYST:

SITE: B1111 Bridge

CODE: R02BF44M24

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Scirtidae		1
Planorbidae *		1

Additional BMWP taxa found by IFE

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Simuliidae	Simulium venum group 1 only	9
Planorbidae *	Anisus vortex, Gyraulus albus	1
Rhyacophilidae (incl. Glossosomatidae)	Agapetus sp. (larva + pupa)	9
Hydroptilidae	Hydroptila sp. 1 only	9
Lymnaeidae	Lymnaea truncatula 1 only	9

SUMMARY OF AUDIT

LOSSES 1 GAINS 4

OMISSIONS: 1

NET EFFECTS:

ON BMWP SCORE 16

ON NO. OF TAXA 3

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 25.4.95

WATER-COURSE: Broughton Brook

PRIMARY ANALYST: SEH

AQC ANALYST: SJL

SITE: Broughton Gauge

CODE: BF09M06

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Coenagriidae 7

Additional BMWP taxa found by IFE

Platycnemididae Platycnemis pennipes 7

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Tipulidae Palaria (Palaria) sp. 9

Asellidae Asellus aquaticus 1 only 11

SUMMARY OF AUDIT

LOSSES 1 GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 8

ON NO. OF TAXA 2

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 8.3.95

WATER-COURSE: Wissey

PRIMARY ANALYST: SJL

AQC ANALYST:

SITE: Home Hale, Necton Bridge

CODE: R02BF48M02

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Chironomidae * 1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Chironomidae *	Orthoclaadiinae	1
Planariidae (incl. Dugesiidae)	Polycelis nigra/tenuis 1 only	9
Sphaeriidae	Pisidium sp.	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 1

NET EFFECTS:

ON BMWP SCORE 8

ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 14.3.95

WATER-COURSE: Wissey

PRIMARY ANALYST: SJL

AQC ANALYST:

SITE: Linghills Farm

CODE: R02BF48M06

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Hydroptilidae

Oxyethira sp. 1 only

9

SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 6

ON NO. OF TAXA 1

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian	LABORATORY: Central	DATE: 28.3.95
WATER-COURSE: Middle Level Main Drain	PRIMARY ANALYST: SJL	AQC ANALYST: SEH
SITE: Mullicourt Priory	CODE: BF53M14	SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Dendrocoelidae	1
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Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Hydrophilidae (incl. Hydraenidae)	Cercyon convexiusculus (adult) 1 only	11
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SUMMARY OF AUDIT

LOSSES 1

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 28.3.95

WATER-COURSE: Counter Drain

PRIMARY ANALYST: SJL

AQC ANALYST: SEH

SITE: Salters Lode

CODE: BF52M06

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Planariidae (incl. Dugesiidae) *	1
Oligochaeta *	1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Planariidae (incl. Dugesiidae) *	Polycelis nigra/tenuis, Dugesia lugubris/polychroa	1
Oligochaeta *	Tubificidae	1

SUMMARY OF AUDIT

LOSSES 0

GAINS 0

OMISSIONS: 2

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 4.10.95

WATER-COURSE: Hiz

PRIMARY ANALYST: ABA

AQC ANALYST:

SITE: Cadwell Arch

CODE: BF13M04

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Sphaeriidae	Pisidium sp.	9
Chironomidae	Prodiamesa olivacea, Rheotanytarsus sp.	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 5

ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 25.10.95

WATER-COURSE: Cottenham Lode

PRIMARY ANALYST: ABA

AQC ANALYST: SEH

SITE: Smithy Fen Bridge, Cottenham

CODE: BF35M16

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Caenidae	Caenis luctuosa/macrura 1 only	9
Lymnaeidae	Lymnaea sp. (juvenile) 1 only	9

SUMMARY OF AUDIT

LOSSES 0 GAINS 2 OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 10

ON NO. OF TAXA 2

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 25.10.95

WATER-COURSE: Willingham Lode

PRIMARY ANALYST: ABA

AQC ANALYST: WTC

SITE: Willingham Culvert Rec Ground

CODE: BF35M05

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Limnephilidae	Indet Limnephilid (juvenile) 1 only	11
Gammaridae (incl. Crangonyctidae)	Crangonyx pseudogracilis 1 only	9

SUMMARY OF AUDIT

LOSSES 0 GAINS 2 OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 13
ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 6.11.95

WATER-COURSE: Forty Foot

PRIMARY ANALYST: ABA

AQC ANALYST: SEH

SITE: Carters Bridge, Chatteris

CODE: BF53M37

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Oligochaeta	1
Baetidae *	3

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Leptoceridae	Athripsodes aterrimus	11
Caenidae	Caenis horaria	9
Baetidae *	Cloeon dipterum	3

SUMMARY OF AUDIT

LOSSES 1

GAINS 2

OMISSIONS: 1

NET EFFECTS:

ON BMWP SCORE 16

ON NO. OF TAXA 1

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 20.11.95

WATER-COURSE: Sapiston

PRIMARY ANALYST: ABA

AQC ANALYST: LJS

SITE: Broadgrass Green

CODE: BF41M01

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Caenidae	Caenis luctuosa/macrura	11
Asellidae	Asellus meridianus 1 only	11
Hydrobiidae (incl. Bithyniidae)	Bithynia tentaculata 1 only	11
Planariidae (incl. Dugesiidae)	Polycelis nigra/tenuis	11
Elmidae	Oulimnius sp. (larva), Elmis aenea (adult)	11

SUMMARY OF AUDIT

LOSSES 0

GAINS 5

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 23

ON NO. OF TAXA 5

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 23.10.95

WATER-COURSE: High Lode

PRIMARY ANALYST: LJS

AQC ANALYST:

SITE: d/s Ramsey STW

CODE: BF53M51

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Dendrocoelidae

1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Glossiphoniidae

Hemiclepsis marginata 1 only

9

SUMMARY OF AUDIT

LOSSES 1

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE -2

ON NO. OF TAXA 0

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 6.11.95

WATER-COURSE: Counter Drain

PRIMARY ANALYST: LJS

AQC ANALYST: ABA

SITE: Welches Dam

CODE: BF52M04

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Hydroptilidae	Oxyethira sp.	9
Gerridae	Gerris argentatus 1 only	9
Dendrocoelidae	Dendrocoelum lacteum 1 only	9
Glossiphoniidae	Hemiclepsis marginata 1 only	11

SUMMARY OF AUDIT

LOSSES 0 GAINS 4

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 19

ON NO. OF TAXA 4

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 6.11.95

WATER-COURSE: Cranbrook Drain

PRIMARY ANALYST: LJS

AQC ANALYST: WTC

SITE: Colnefen Farm

CODE: BF52M14

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Dendrocoelidae

1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Haliplidae

Haliphus lineatocollis (adult) 1 only

11

SUMMARY OF AUDIT

LOSSES 1

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian
 WATER-COURSE: Marley Gap Brook
 SITE: Stocks Bridge, St.Ives

LABORATORY: Central
 PRIMARY ANALYST: SEH
 CODE: BF26M14

DATE: 4.10.95
 AQC ANALYST: ABA
 SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Gerridae	1
Chironomidae *	1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Corophiidae	Corophium curvispinum 1 only	9
Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi	11
Sphaeriidae	Pisidium sp. 1 only	9
Glossiphoniidae	Theromyzon tessulatum 1 only	9
Chironomidae *	Orthocladinae, Chironomini, Tanytarsini	1
Leptoceridae	Athripsodes aterrimus 1 only	9

SUMMARY OF AUDIT

LOSSES 1 GAINS 5

OMISSIONS: 1

NET EFFECTS:

ON BMWP SCORE 20
 ON NO. OF TAXA 4

1 No representative of family in vial
 2 Alternative terrestrial specimen in vial
 3 Posterior end only in vial
 4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling
 6 Taxon in vial but not recorded
 7 Mis-identification
 8 Typographical error - wrong box ticked

9 Taxon missed in sorting
 10 Unexplained error
 11 Taxon added in internal AQC
 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 10.10.95

WATER-COURSE: Bromham Brook

PRIMARY ANALYST: SEH

AQC ANALYST:

SITE: Bridge End, Bromham

CODE: BF11M21

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Ancylidae (incl. Acroloxidae)	Acroloxus lacustris 1 only	9
Erpobdellidae	Erpobdella octoculata 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 9

ON NO. OF TAXA 2

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no-net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 17.10.95

WATER-COURSE: Great Ouse

PRIMARY ANALYST: SEH

AQC ANALYST: ABA

SITE: Eaton Socon Mill

CODE: BF20M03

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

Corophiidae * 1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Valvatidae	Valvata cristata	9
Corophiidae *	Corophium curvispinum	1
Elmidae	Oulimnius sp. (larva) 1 only	9

SUMMARY OF AUDIT

LOSSES 0 GAINS 2

OMISSIONS: 1

NET EFFECTS:

ON BMWP SCORE 8
ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 9.11.95

WATER-
COURSE: Claydon Brook

PRIMARY
ANALYST: SEH

AQC
ANALYST: LJS

SITE: Addington

CODE: BF02M23

SORT/AQC
METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

<u>Family name</u>	<u>Species name (where appropriate)</u>	<u>Presumed cause of error (see footnotes)</u>
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Hydroptilidae

Hydroptila sp. (pupa) 1 only

11

SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 6

ON NO. OF TAXA 1

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Central

DATE: 20.11.95

WATER-COURSE: Little Ouse

PRIMARY ANALYST: SEH

AQC ANALYST: WTC

SITE: Blo Norton Ford

CODE: BF42M04

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 0

GAINS 0

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian	LABORATORY: Central	DATE: 31.10.95
WATER-COURSE: Middleton Stop Drain	PRIMARY ANALYST: WTC	AQC ANALYST:
SITE: Middleton Towers	CODE: BF59M04	SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Limnephilidae	Sericostoma personatum	7
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Additional BMWP taxa found by IFE

Sericostomatidae	Sericostoma personatum	7
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SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Leptoceridae	Athripsodes aterrimus, Mystacides azurea	9
Haliplidae	Halipus sp.(larva) 1 only	9
Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi, Bithynia leachi	9
Sphaeriidae	Pisidium sp.	9

SUMMARY OF AUDIT

LOSSES 1

GAINS 5

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 24

ON NO. OF TAXA 4

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 13.3.95

WATER-
COURSE: Ant

PRIMARY
ANALYST: CSA

AQC
ANALYST:

SITE: East Rushton

CODE: R04BFANT080

SORT/AQC
METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Halplidae	Halplus sp. (adult) 1 only	9
Hydropsychidae	Hydropsyche siltalai 1 only	9
Lymnaeidae	Lymnaea palustris/truncatula 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 13

ON NO. OF TAXA 3

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 22.3.95

WATER-
COURSE: Hempnall Beck

PRIMARY
ANALYST: CSA

AQC
ANALYST: JMG

SITE: Tasburgh Hall Ford

CODE: R04BFTAS072

SORT/AQC
METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Polycentropodidae	7
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Additional BMWP taxa found by IFE

Psychomyiidae (incl. Ecnomidae)	Lype sp.	7
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SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Limnephilidae	Indet Limnephilids (juveniles)	11
Planariidae (incl. Dugesiidae)	Polycelis nigra/tenuis 1 only	11
Valvatidae	Valvata cristata	11
Hydrobiidae (incl. Bithyniidae)	Bithynia tentaculata 1 only	11

SUMMARY OF AUDIT

LOSSES 1

GAINS 5

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 19

ON NO. OF TAXA 4

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 18.4.95

WATER-COURSE: Stiffkey

PRIMARY ANALYST: CSA

AQC ANALYST:

SITE: East Barsham Bridge

CODE: R04BFSTF020

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Ephemereidae	Ephemereella ignita 1 only	9
Leptoceridae	Mystacides azurea 1 only	9
Hydroptilidae	Hydroptila sp. 1 only	9
Elmidae	Elmis aenea, Limnius volckmari (larvae), Oulimnius tuberculatus (adult)	9
Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi	9
Sphaeriidae	Pisidium sp.	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 6

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 37

ON NO. OF TAXA 6

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian
WATER-
COURSE: Butley Creek

LABORATORY: Eastern
PRIMARY
ANALYST: EDT

DATE: 13.3.95
AQC
ANALYST:
SORT/AQC
METHOD: Live

SITE: Low Corner

CODE: R04BFOAE045

RESULTS OF PRIMARY AUDIT

<u>Family name</u>	<u>Species name (where appropriate)</u>	<u>Presumed cause of error (see footnotes)</u>
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Psychomyiidae (incl. Ecnomidae)	Lype sp.	9
Polycentropodidae	Plectrocnemia sp. 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 15

ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 13.3.95

WATER-

PRIMARY

AQC

COURSE: Bucklesham Mill

ANALYST: EDT

ANALYST: CSA

SITE: Ipswich Intake

CODE: R04BFMIL030

SORT/AQC

METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Sericostomatidae

1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE

(For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Hydroptilidae

Ithytrichia sp.

9

Scirtidae

Elodes sp. (larva) 1 only

11

SUMMARY OF AUDIT

LOSSES 1 GAINS 2 OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 1

ON NO. OF TAXA 1

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 18.4.95

WATER-
COURSE: Burn

PRIMARY
ANALYST: EDT

AQC
ANALYST: JMG

SITE: South Creake Bridge

CODE: R04BFBRN010

SORT/AQC
METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE

(For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Planariidae (incl. Dugesiidae)	Polycelis nigra/tenuis 1 only	9
Valvatidae	Valvata cristata 1 only	9
Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi 1 only	9
Sphaeriidae	Pisidium sp. 1 only	9

SUMMARY OF AUDIT

LOSSES 0 GAINS 4

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 14
ON NO. OF TAXA 4

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 24.4.95

WATER-COURSE: Mar Dyke

PRIMARY ANALYST: EDT

AQC ANALYST: FCE

SITE: Stifford Gauging Station

CODE: R01BFMD0202

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Libellulidae

Indet Libellulid (juvenile) 1 only

9

SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 8

ON NO. OF TAXA 1

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 20.3.95

WATER-COURSE: Ter

PRIMARY ANALYST: FCE

AQC ANALYST:

SITE: Crabbs Bridge

CODE: R01BFTE0107

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Leptophlebiidae	Paraleptophlebia sp. 1 only	9
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SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 10

ON NO. OF TAXA 1

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 6.3.95

WATER-COURSE: Brett

PRIMARY ANALYST: FCE

AQC ANALYST:

SITE: Bildeston Bridge

CODE: R01BFBT0175

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Leptoceridae	Athripsodes aterrimus 1 only	9
Elmidae	Elmis aenea (adults + larvae)	9
Simuliidae	Simulium cryophilum group 1 only	9
Sphaeriidae	Pisidium sp.	9

SUMMARY OF AUDIT

LOSSES 0 GAINS 4 OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 23

ON NO. OF TAXA 4

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 6.3.95

WATER-COURSE: Wang

PRIMARY ANALYST: JMG

AQC ANALYST:

SITE: A145 Bridge

CODE: R04BFWNG020

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Lymnaeidae

Lymnaea truncatula 1 only

9

SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 3

ON NO. OF TAXA 1

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 18.9.95

WATER-COURSE: Fromus

PRIMARY ANALYST: CSA

AQC ANALYST: EDT

SITE: Gromford

CODE: BFFRO040

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Lymnaeidae	Lymnaea peregra	11
Leptoceridae	Mystacides nigra	11
Psychomyiidae (incl. Ecnomidae)	Lype phaeopa/reducta	11
Caenidae	Caenis luctuosa/macrura, C.horaria	9
Scirtidae	Elodes sp. (larvae)	11

SUMMARY OF AUDIT

LOSSES 0

GAINS 5

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 33

ON NO. OF TAXA 5

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 2.10.95

WATER-
COURSE: Box

PRIMARY
ANALYST: EDT

AQC
ANALYST: LKB

SITE: Boxford Bypass

CODE: BFBX0134

SORT/AQC
METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Caenidae	Caenis luctuosa/macrura 1 only	11
Asellidae	Asellus aquaticus 1 only	11
Elmidae	Elmis aenea (adult) 1 only	11
Planorbidae	Bathyomphalus contortus 1 only	11

SUMMARY OF AUDIT

LOSSES 0

GAINS 4

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 18

ON NO. OF TAXA 4

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 13.11.95

WATER-COURSE: Ore

PRIMARY ANALYST: EDT

AQC ANALYST: LKB

SITE: u/s Framlingham STW

CODE: BFORE010

SORT/AQC METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
-------------	-------------------------------------	---

VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Caenidae	Caenis luctuosa/macrura I only	11
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SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 7

ON NO. OF TAXA 1

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 13.11.95

WATER-COURSE: Blyth

PRIMARY ANALYST: EDT

AQC ANALYST: LKB

SITE: A144 Bridge

CODE: BFBLY020

SORT/AQC METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Calopterygidae	Calopteryx splendens 1 only	11
Ancyliidae (incl. Acroloxidae)	Acroloxus lacustris	11
Planariidae (incl. Dugesiidae)	Polycelis nigra/tenuis 1 only	9
Piscicolidae	Piscicola geometra 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 4

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 23

ON NO. OF TAXA 4

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian
WATER-COURSE: Rattlesden
SITE: Burford Bridge

LABORATORY: Eastern
PRIMARY ANALYST: EDT
CODE: BFRAT090

DATE: 20.11.95
AQC ANALYST: JMG
SORT/AQC METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Goeridae	Goera pilosa	9
Simuliidae	Simulium ornatum group 1 only	11
Valvatidae	Valvata piscinalis 1 only	9

SUMMARY OF AUDIT

LOSSES 0 GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 18
ON NO. OF TAXA 3

1 No representative of family in vial
2 Alternative terrestrial specimen in vial
3 Posterior end only in vial
4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling
6 Taxon in vial but not recorded
7 Mis-identification
8 Typographical error - wrong box ticked

9 Taxon missed in sorting
10 Unexplained error
11 Taxon added in internal AQC
12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 17.9.95

WATER-COURSE: Wid

PRIMARY ANALYST: JMG

AQC ANALYST: EDT

SITE: Whites Bridge

CODE: BFWD0150

SORT/AQC METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Gammaridae (incl. Crangonyctidae)	Gammarus sp. (juvenile) 1 only	11
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SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 6

ON NO. OF TAXA 1

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 9.10.95

WATER-COURSE: Gipping

PRIMARY ANALYST: LKB

AQC ANALYST:

SITE: Bridge Farm

CODE: BFGIP020

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Elmidae

Ochthebius minimus (Hydrophilidae)

7

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 1 GAINS 0

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE -5

ON NO. OF TAXA -1

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 9.10.95

WATER-COURSE: Rattlesden

PRIMARY ANALYST: LKB

AQC ANALYST: JMG

SITE: u/s Confluence ICI

CODE: BFGIP060

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Physidae	Physa sp. (juvenile) 1 only	9
Psychomyiidae (incl. Ecnomidae)	Tinodes waeneri	11
Neritidae	Theodoxus fluviatilis 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 17

ON NO. OF TAXA 3

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 13.11.95

WATER-COURSE: Wensum

PRIMARY ANALYST: LKB

AQC ANALYST: EDT

SITE: Hellesdon Mill

CODE: BFWEN240

SORT/AQC METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

Asellidae	Asellus aquaticus	6
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SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Gyrinidae	Orectochilus villosus (larva) 1 only	11
Planariidae (incl. Dugesiidae)	Dugesia lugubris/polychroa 1 only	9
Planorbidae	Armiger crista	11
Corixidae	Sigara dorsalis 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 5

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 21

ON NO. OF TAXA 5

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Eastern

DATE: 27.11.95

WATER-COURSE: Brain

PRIMARY ANALYST: LKB

AQC ANALYST: JMG

SITE: u/s Braintree STW

CODE: BFBR0221

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Tipulidae	Sciomyzidae	7
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Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Simuliidae	Simulium sp. (juvenile) 1 only	11
Hydroptilidae	Hydroptila sp. (pupa) 1 only	9

SUMMARY OF AUDIT

LOSSES 1 GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 6
ON NO. OF TAXA 1

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 8.3.95

WATER-COURSE: Woldgrift Drain

PRIMARY ANALYST: DMB

AQC ANALYST:

SITE: Washdyke Bridge

CODE: R03BFWOLD070W

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Planariidae (incl. Dugesidae)	Polyclis nigra group 1 only	9
Baetidae	Cloeon dipterum 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 9

ON NO. OF TAXA 2

1 No representative of family in vial *

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 14.3.95

WATER-COURSE: Upper Witham

PRIMARY ANALYST: DMB

AQC ANALYST:

SITE: Little Ponton

CODE: R03BFWITH170L

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Scirtidae	Elodes sp. (larvae)	9
Asellidae	Asellus meridianus 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 8

ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 19.4.95

WATER-COURSE: Willow Brook

PRIMARY ANALYST: LJS

AQC ANALYST:

SITE: Apethorpe

CODE: R05BFWILL130A

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 0

GAINS 0

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian
WATER-
COURSE: Cross Drain
SITE: Six Score Farm

LABORATORY: Northern
PRIMARY
ANALYST: RPC
CODE: R05BFCROS040S

DATE: 17.3.95
AQC
ANALYST:
SORT/AQC
METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Coenagriidae	Ischnura elegans	9
Hydrophilidae (incl. Hydraenidae)	Ochthebius minimus (adult) 1 only	9
Dryopidae	Dryops sp. (larvae)	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 16
ON NO. OF TAXA 3

1 No representative of family in vial
2 Alternative terrestrial specimen in vial
3 Posterior end only in vial
4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling
6 Taxon in vial but not recorded
7 Mis-identification
8 Typographical error - wrong box ticked

9 Taxon missed in sorting
10 Unexplained error
11 Taxon added in internal AQC
12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 4.4.95

WATER-COURSE: Welland (Coronation Cut)

PRIMARY ANALYST: RPC

AQC ANALYST: CAE

SITE: B1165 Bridge

CODE: R05BFWELL490B

SORT/AQC METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Unionidae	Note on data sheet "Returned to river"	1
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Additional BMWP taxa found by IFE

Polycentropodidae	Cyrnus flavidus	6
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SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 1

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 1

ON NO. OF TAXA 0

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 1.5.95

WATER-COURSE: Hog Dyke

PRIMARY ANALYST: RPC

AQC ANALYST: CAE

SITE: Raunds, Old A605 Bridge

CODE: BFHOGD090R

SORT/AQC METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Elmidae	Elmis aenea (larvae)	9
Baetidae	Baetis rhodani 1 only	11

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 9
ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 1.5.95

WATER-
COURSE: Nene

PRIMARY
ANALYST: RPC

AQC
ANALYST: DMB

SITE: Irthlingborough

CODE: BFNENE3001

SORT/AQC
METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Unionidae Note on data sheet "returned to river" 1

Additional BMWP taxa found by IFE

Physidae Physa fontinalis 7

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Hydroptilidae Hydroptila sp. 9

Notonectidae Notonecta sp. (nymph) 1 only 9

SUMMARY OF AUDIT

LOSSES 1 GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 8

ON NO. OF TAXA 2

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 16.5.95

WATER-COURSE: Lud

PRIMARY ANALYST: RPC

AQC ANALYST:

SITE: Louth Trout Farm

CODE: R03BFRLUD030L

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Planariidae (incl. Dugesiidae)

1

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 1 GAINS 0

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE -5

ON NO. OF TAXA -1

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 10.4.95

WATER-COURSE: New Ancholme

PRIMARY ANALYST: SJB

AQC ANALYST:

SITE: Cadney

CODE: R03BFANCN130C

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

Unionidae	Note on data sheet "Seen in field"	1
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Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Viviparidae	Viviparus sp. (juveniles)	9
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SUMMARY OF AUDIT

LOSSES 1

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 1.9.95

WATER-COURSE: Willow Brook

PRIMARY ANALYST: DMB

AQC ANALYST:

SITE: A6116

CODE: BFWILS020S

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Planariidae (incl. Dugesiidae)	Dugesia lugubris/polychroa Polycelis felina	9
Planorbidae	Gyraulus albus 1 only	9
Elmidae	Elmis aenea (larva) 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 13

ON NO. OF TAXA 3

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 26.9.95

WATER-
COURSE: Barlings Eau

PRIMARY
ANALYST: DMB

AQC
ANALYST: RPC

SITE: Stainton Bridge

CODE: BFBARL090S

SORT/AQC
METHOD: Live/Preserved

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Tipulidae	Tipula montium group 1 only	9
Baetidae	Centroptilum luteolum 1 only	11
Piscicolidae	Piscicola geometra	11

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 13

ON NO. OF TAXA 3

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 5.9.95

WATER-COURSE: Bain

PRIMARY ANALYST: LJS

AQC ANALYST:

SITE: Dalderby

CODE: BFBAIN280D

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Hydrometridae	Hydrometra sp. (nymph) 1 only	9
Coenagriidae	Indet Coenagriid (juvenile) 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 11

ON NO. OF TAXA 2

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 19.9.95

WATER-
COURSE: Town Drain

PRIMARY
ANALYST: LJS

AQC
ANALYST:

SITE: Old A16

CODE: BFTOWN050A

SORT/AQC
METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 0

GAINS 0

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 16.10.95

WATER-COURSE: Harpers Brook

PRIMARY ANALYST: LJS

AQC ANALYST: RPC

SITE: u/s Brigstock STW

CODE: BFHARP140B

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 0 GAINS 0

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0
ON NO. OF TAXA 0

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 1.9.95

WATER-COURSE: Glen

PRIMARY ANALYST: RPC

AQC ANALYST:

SITE: Tongue End

CODE: BFGLEN520T

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Caenidae	Caenis robusta 1 only	9
Valvatidae	Valvata piscinalis	9
Hydroptilidae	Agraylea multipunctata 1 only	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 16

ON NO. OF TAXA 3

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 19.9.95

WATER-COURSE: Willoughby High Drain

PRIMARY ANALYST: RPC

AQC ANALYST:

SITE: Hogsthorpe

CODE: BFWILL070H

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

None

SUMMARY OF AUDIT

LOSSES 0

GAINS 0

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0

ON NO. OF TAXA 0

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 25.9.95

WATER-COURSE: Welland

PRIMARY ANALYST: RPC

AQC ANALYST: DMB

SITE: Gretton Road Bridge

CODE: BFWELL170G

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Unionidae	Anodonta cygnaea 1 only	11
Hydrometridae	Hydrometra stagnorum	11
Hydrophilidae (incl. Hydraenidae)	Laccobius striatulus? (adult) 1 only	11

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 16

ON NO. OF TAXA 3

1 No representative of family in vial

5 Specimen dead at time of sampling

9 Taxon missed in sorting

2 Alternative terrestrial specimen in vial

6 Taxon in vial but not recorded

10 Unexplained error

3 Posterior end only in vial

7 Mis-identification

11 Taxon added in internal AQC

4 Empty shell or case or cast skin in vial

8 Typographical error - wrong box ticked

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 14.11.95

WATER-COURSE: Ancholme

PRIMARY ANALYST: SJB

AQC ANALYST:

SITE: Bishopsbridge

CODE: BFANCN060B

SORT/AQC METHOD: Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Limnephilidae	Indet Limnephilid (juvenile) 1 only	9
Hydroptilidae	Hydroptila sp.	9
Elmidae	Elmis aenea (adults + larvae), Oulimnius sp. (larvae)	9

SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 18

ON NO. OF TAXA 3

- 1 No representative of family in vial
- 2 Alternative terrestrial specimen in vial
- 3 Posterior end only in vial
- 4 Empty shell or case or cast skin in vial

- 5 Specimen dead at time of sampling
- 6 Taxon in vial but not recorded
- 7 Mis-identification
- 8 Typographical error - wrong box ticked

- 9 Taxon missed in sorting
- 10 Unexplained error
- 11 Taxon added in internal AQC
- 12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Anglian

LABORATORY: Northern

DATE: 30.11.95

WATER-COURSE: Laceby Beck

PRIMARY ANALYST: SJH

AQC ANALYST: DMB

SITE: Littlecoates

CODE: BFLACE070L

SORT/AQC METHOD: Live/Live

RESULTS OF PRIMARY AUDIT

Family name	Species name (where appropriate)	Presumed cause of error (see footnotes)
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VIAL

BMWP taxa not found by IFE

None

Additional BMWP taxa found by IFE

None

SAMPLE

BMWP taxa not found by IFE (For samples where vial is broken or absent)

N/a

Additional BMWP taxa found by IFE

Planariidae (incl. Dugesidae)	Polycelis nigra/tenuis 1 only	9
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SUMMARY OF AUDIT

LOSSES 0

GAINS 1

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 5

ON NO. OF TAXA 1

1 No representative of family in vial

2 Alternative terrestrial specimen in vial

3 Posterior end only in vial

4 Empty shell or case or cast skin in vial

5 Specimen dead at time of sampling

6 Taxon in vial but not recorded

7 Mis-identification

8 Typographical error - wrong box ticked

9 Taxon missed in sorting

10 Unexplained error

11 Taxon added in internal AQC

12 Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)