



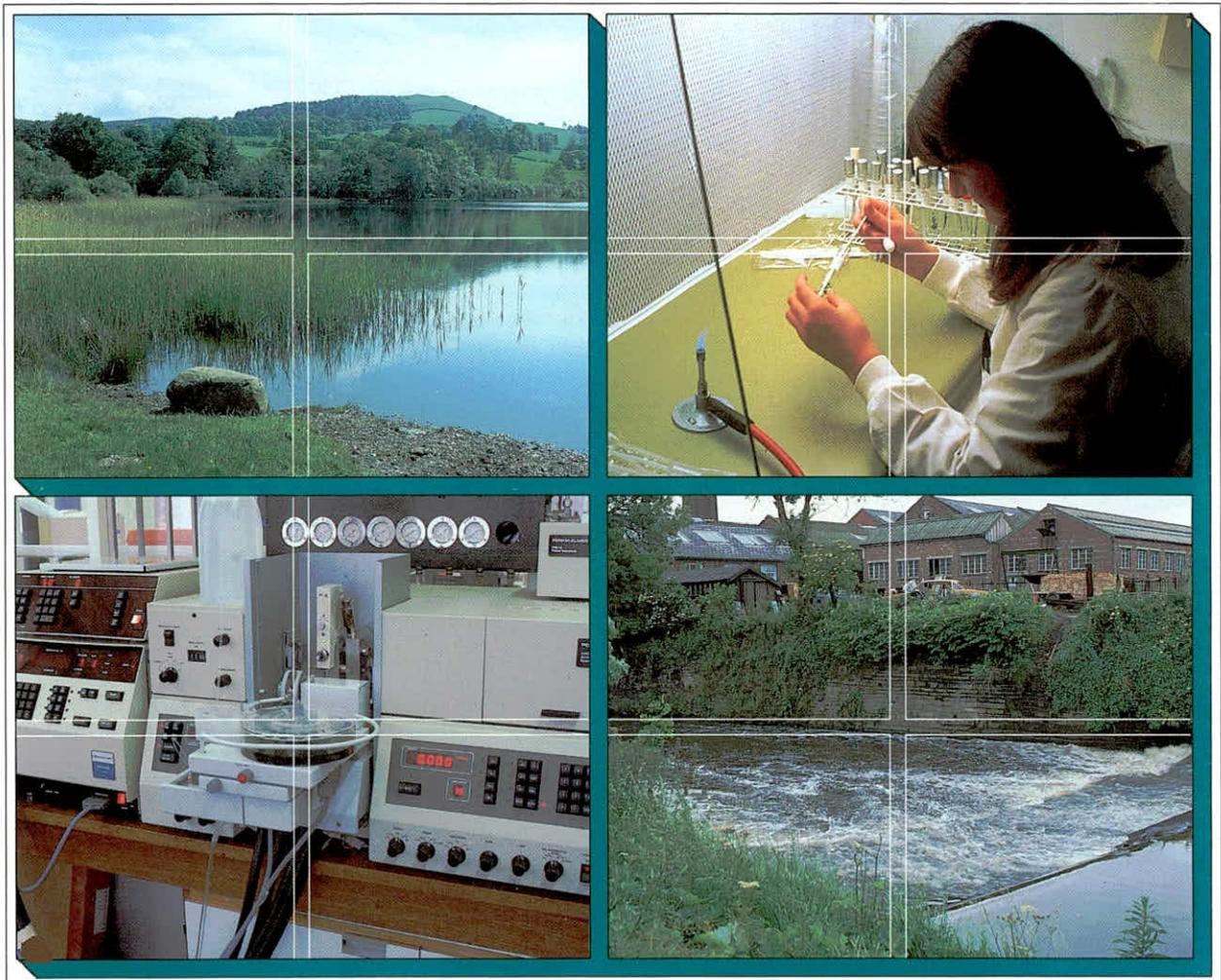
# **An audit of performance in the analysis of biological samples in 1995 NRA Northumbria & Yorkshire Region: Primary Audit**

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**An audit of performance in the analysis of  
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NRA Northumbria & Yorkshire 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 Northumbria & Yorkshire 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 30 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 Northumbria & Yorkshire 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 Northumbria & Yorkshire 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 Northumbria & Yorkshire Region's primary analysts in the 1995 audit and Table 9 lists 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.

## **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 27 samples audited for South Yorkshire Area

River	Site	Primary Analyst	Losses	Gains	Omissions
<b>SPRING</b>					
Cudworth Dike	d/s STW	FC	0	1	0
Hooton Pagnell Beck	Hooton Pagnell	FC	0	0	0
Dearne	Adwick-upon Dearne	KR	0	0	0
Tyresal Beck	d/s Smalewell STW	KR	0	1	0
Little Don	Deeplar	KR	0	1	0
Bentley Brook	d/s Flockton	KR	0	1	0
Aire	Crossflats	LBS	0	2	1
Swansike Dike	u/s Great Common Drain	LBS	0	1	0
Rother	Storforth Lane	LBS	0	0	0
West Beck	d/s Rainbow Springs	RJJ	0	3	0
<b>AUTUMN</b>					
Little Went	d/s Carleton STW	FC	0	0	0
Rother	Renishaw	FC	0	1	0
Malham Beck	u/s Malham STW	FC	0	1	0
Brighouse Beck	u/s Worth	FC	0	2	0
Rockley Dike	u/s Warsborough Reservoir	FC	0	0	0
Womersley Beck	d/s NCB Womersley	JB	0	2	0
Rivelin	Holling Bridge	LBS	1	2	0
Sheffield Beck	Near pond	LBS	0	0	1
Chellow Dean Beck	Nr Woollen Mill	LFM	0	0	0
Meanwood Beck	Bustlingthorpe Lane	LFM	0	3	0
Hebble Brook	d/s Salter Hebble	LFM	1	2	0
Foulness	Major Bridge	RJJ	0	1	0
Barmston Main Drain	Barmston	RJJ	0	0	0
Otterburn Beck	u/s Bell Bush STW & Trout Farm	RJJ	0	2	1
Cononley Beck	u/s R.Aire	VH	0	6	0
Dearne	Little Houghton Bridge	VH	0	3	0
Aire	Carlton, u/s Eller Beck	LFM/JB/FC	0	4	0

Table 2. The 17 samples audited for Northumbria Area

River	Site	Primary Analyst	Losses	Gains	Omissions
<b>SPRING</b>					
Coquet	Coquet Lodge	EC	0	0	0
Wreigh Burn	Thropton	EC	0	1	0
Wansbeck	Middleton Manor	GH	0	1	0
Pegwhistle Burn	Plessey Wood	GH	0	2	0
Cotting Burn	u/s Hospital STW	GH	0	0	0
Pont	Ponteland	GH	1	3	0
Wear	Daddy Shield	JH	0	2	0
Castle Eden Burn	Hordon	JH	1	1	1
Croxdale	Croxdale House	JH	0	1	0
Black Burn	Midgeholme	VW	0	3	0
<b>AUTUMN</b>					
How Burn	Butterwell OCCS	EC	0	1	0
Wooler Water	Coldgate Mill	EC	0	0	0
Deerness	Esh Winning	JH	0	0	0
Swarland Burn	Swarland Fence	JH	0	0	0
Browney	Stone Bridge	SL	0	0	0
Lewis Burn	Unnamed	VW	0	2	0
Warks Burn	B6320 Bridge	VW	0	2	0

Table 3. The 16 samples audited for Dales Area

<b>River</b>	<b>Site</b>	<b>Primary Analyst</b>	<b>Losses</b>	<b>Gains</b>	<b>Omissions</b>
<b>SPRING</b>					
Leven	East Angrove	EA	0	6	0
Wharfe	Castley	JC	0	1	0
Burn	Healey	JC	0	1	0
Oak Beck	Knox Mill Ford	JC	0	2	1
Skerne	Great Burdon	JC	0	1	0
Skerne	Parkside	KD	0	0	0
Pocklington Beck	Pocklington Wood	SW	0	5	0
Kex Beck	Beamsley	SW	0	2	0
Dove	Keldholme	SW	0	0	0
Ouse	Scarborough Railway Bridg	SW	0	4	0
<b>AUTUMN</b>					
Derwent	Sherburn	JC	0	1	0
Nidd	Holme Bottom	KD	0	3	1
Nidd	Walshford Bridge	KD	0	0	0
Thornton Beck	Bedlam	KD	0	2	0
Nidd	Knaresborough	SW	0	0	0
Nidd	u/s Thornton Beck	SW	0	5	0

Table 4. Statistics of 1995 Primary Audit results for Northumbria & Yorkshire Region

<b>Analyst/Group</b>	<b>n</b>	<b>Mean gains</b>	<b>Standard error</b>	<b>No. samples &gt;2 gains</b>	<b>% samples &gt;2 gains</b>	<b>Higest no. gains</b>	<b>Mean errors (l+g+o)</b>	<b>Standard error</b>
<b>S. Yorkshire</b>	<b>27</b>	<b>1.44</b>	<b>0.28</b>	<b>5</b>	<b>18.52</b>	<b>6</b>	<b>1.63</b>	<b>0.29</b>
FC*	8	1.13	0.48	1	12.50	4	1.13	0.48
JB*	2	3.00	1.00	1	50.00	4	3.00	1.00
KR	4	0.75	0.25	0	0.00	1	0.75	0.25
LBS	5	1.00	0.45	0	0.00	2	1.60	0.60
LFM*	4	2.25	0.85	2	50.00	4	2.50	0.87
RJJ	4	1.50	0.65	1	25.00	3	1.75	0.75
VH	2	4.50	1.50	2	100.00	6	4.50	1.50
<b>Northumbria</b>	<b>17</b>	<b>1.12</b>	<b>0.26</b>	<b>2</b>	<b>11.76</b>	<b>3</b>	<b>1.29</b>	<b>0.31</b>
EC	4	0.50	0.29	0	0.00	1	0.50	0.29
GH	4	1.50	0.65	1	25.00	3	1.75	0.85
JH	5	0.80	0.37	0	0.00	2	1.00	0.52
SL	1	0.00	n/a	0	0.00	0	0.00	n/a
VW	3	2.33	0.33	1	33.33	3	2.33	0.33
<b>Dales</b>	<b>16</b>	<b>2.06</b>	<b>0.50</b>	<b>5</b>	<b>31.25</b>	<b>6</b>	<b>2.19</b>	<b>0.51</b>
EA	1	6.00	n/a	1	100.00	6	6.00	n/a
JC	5	1.20	0.20	0	0.00	2	1.40	0.40
KD	4	1.25	0.75	1	25.00	3	1.50	0.96
SW	6	2.67	0.95	3	50.00	5	2.67	0.95
<b>N &amp; Y Region</b>	<b>60</b>	<b>1.52</b>	<b>0.20</b>	<b>12</b>	<b>20.00</b>	<b>6</b>	<b>1.68</b>	<b>0.21</b>
<b>Whole of NRA</b>	<b>481</b>	<b>1.88</b>	<b>0.08</b>	<b>150</b>	<b>31.19</b>	<b>8</b>	<b>2.21</b>	<b>0.09</b>

\*One sample that was analysed by a combination of LFM/JB/FC is treated as a separate result for each of these analysts.

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
<b>Anglian</b>	<b>60</b>	<b>2.25</b>	<b>0.20</b>	<b>24</b>	<b>40.00</b>	<b>6</b>	<b>2.63</b>	<b>0.22</b>
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
<b>N'umb &amp; Yorks</b>	<b>60</b>	<b>1.52</b>	<b>0.20</b>	<b>12</b>	<b>20.00</b>	<b>6</b>	<b>1.68</b>	<b>0.21</b>
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
<b>North West</b>	<b>60</b>	<b>2.52</b>	<b>0.27</b>	<b>26</b>	<b>43.33</b>	<b>8</b>	<b>2.98</b>	<b>0.30</b>
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
<b>Severn-Trent</b>	<b>61</b>	<b>1.84</b>	<b>0.22</b>	<b>18</b>	<b>29.51</b>	<b>8</b>	<b>1.23</b>	<b>0.27</b>
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
<b>Southern</b>	<b>60</b>	<b>1.33</b>	<b>0.19</b>	<b>10</b>	<b>16.67</b>	<b>7</b>	<b>1.77</b>	<b>0.21</b>
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
<b>South Western</b>	<b>60</b>	<b>1.52</b>	<b>0.21</b>	<b>16</b>	<b>26.67</b>	<b>6</b>	<b>1.63</b>	<b>0.23</b>
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
<b>Thames</b>	<b>60</b>	<b>2.05</b>	<b>0.22</b>	<b>22</b>	<b>36.67</b>	<b>7</b>	<b>2.43</b>	<b>0.24</b>
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
<b>Welsh</b>	<b>60</b>	<b>1.98</b>	<b>0.22</b>	<b>22</b>	<b>36.67</b>	<b>6</b>	<b>2.30</b>	<b>0.23</b>
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
<b>Whole of NRA</b>	<b>481</b>	<b>1.88</b>	<b>0.08</b>	<b>150</b>	<b>31.19</b>	<b>8</b>	<b>2.21</b>	<b>0.09</b>

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

<b>Analyst/Group</b>	<b>n</b>	<b>Mean net effect on BMWP score</b>	<b>% of samples underestimated by score &gt;13</b>	<b>Maximum underestimate of BMWP score</b>	<b>Mean net effect on no. of taxa</b>	<b>% of samples underestimated by &gt;2 taxa</b>	<b>Maximum underestimate of no. of taxa</b>
<b>S. Yorkshire</b>	<b>27</b>	<b>7.33</b>	<b>14.81</b>	<b>35</b>	<b>1.37</b>	<b>18.52</b>	<b>6</b>
FC*	8	6.25	12.50	25	1.13	12.50	4
JB*	2	16.50	50.00	25	3.00	50.00	4
KR	4	5.00	0.00	10	0.75	0.00	1
LBS	5	5.20	0.00	12	0.80	0.00	2
LFM*	4	12.00	50.00	25	2.00	50.00	4
RJJ	4	5.40	0.00	13	1.50	25.00	3
VH	2	24.50	100.00	35	4.50	100.00	6
<b>Northumbria</b>	<b>17</b>	<b>5.41</b>	<b>5.88</b>	<b>20</b>	<b>1.00</b>	<b>5.88</b>	<b>3</b>
EC	4	3.75	0.00	8	0.50	0.00	1
GH	4	7.00	0.00	13	1.25	0.00	2
JH	5	3.00	0.00	11	0.60	0.00	2
SL	1	0.00	0.00	0	0.00	0.00	0
VW	3	11.33	33.33	20	2.33	33.33	3
<b>Dales</b>	<b>16</b>	<b>13.19</b>	<b>31.25</b>	<b>40</b>	<b>2.06</b>	<b>31.25</b>	<b>6</b>
EA	1	40.00	100.00	40	6.00	100.00	6
JC	5	6.40	0.00	10	1.20	0.00	2
KD	4	7.00	25.00	16	1.25	25.00	3
SW	6	18.50	50.00	37	2.67	50.00	5
<b>N &amp; Y Region</b>	<b>60</b>	<b>8.35</b>	<b>16.67</b>	<b>40</b>	<b>1.45</b>	<b>18.33</b>	<b>6</b>
<b>Whole of NRA</b>	<b>481</b>	<b>9.56</b>	<b>28.90</b>	<b>52</b>	<b>1.65</b>	<b>27.86</b>	<b>8</b>

\*One sample that was analysed by a combination of LFM/JB/FC is treated as a separate result for each of these analysts

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
<b>Anglian Region</b>	<b>60</b>	<b>10.32</b>	<b>35.00</b>	<b>37</b>	<b>1.98</b>	<b>35.00</b>	<b>6</b>
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
<b>N &amp; Y Region</b>	<b>60</b>	<b>8.35</b>	<b>16.67</b>	<b>40</b>	<b>1.45</b>	<b>18.33</b>	<b>6</b>
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
<b>N. West Region</b>	<b>60</b>	<b>13.03</b>	<b>41.67</b>	<b>49</b>	<b>2.18</b>	<b>40.00</b>	<b>8</b>
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
<b>S-T Region</b>	<b>61</b>	<b>8.69</b>	<b>27.87</b>	<b>41</b>	<b>1.64</b>	<b>27.87</b>	<b>7</b>
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
<b>Southern Region</b>	<b>60</b>	<b>6.62</b>	<b>20.00</b>	<b>52</b>	<b>1.02</b>	<b>15.00</b>	<b>6</b>
Western	30	5.33	13.33	32	0.90	13.33	6
Eastern	30	7.90	40.00	52	1.13	16.67	6
<b>S.W. Region</b>	<b>60</b>	<b>8.43</b>	<b>30.00</b>	<b>35</b>	<b>1.42</b>	<b>23.33</b>	<b>6</b>
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
<b>Thames Region</b>	<b>60</b>	<b>9.18</b>	<b>26.67</b>	<b>47</b>	<b>1.78</b>	<b>31.67</b>	<b>7</b>
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
<b>Welsh Region</b>	<b>60</b>	<b>11.87</b>	<b>33.33</b>	<b>43</b>	<b>1.73</b>	<b>31.67</b>	<b>6</b>
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
<b>Whole of NRA</b>	<b>481</b>	<b>9.56</b>	<b>28.90</b>	<b>52</b>	<b>1.65</b>	<b>27.86</b>	<b>8</b>

Table 8. Taxa missed by Northumbria & Yorkshire Region's primary analysts

<b>Family</b>	<b>n</b>	<b>% of N &amp; Y Region's missed taxa in Primary Audit</b>	<b>% of missed taxa in Primary Audit for all NRA Regions</b>
Hydrophilidae (incl. Hydraenidae)	8	9.20	5.46
Hydroptilidae	6	6.90	5.93
Dytiscidae (incl. Noteridae)	4	4.60	1.90
Elmidae	4	4.60	4.03
Hydrobiidae (incl. Bithyniidae)	4	4.60	4.98
Nemouridae	4	4.60	2.25
Planorbidae	4	4.60	2.85
Psychomyiidae (incl. Ecnomidae)	4	4.60	2.85
Simuliidae	4	4.60	2.73
Caenidae	3	3.45	3.56
Gyrinidae	3	3.45	1.19
Leptophlebiidae	3	3.45	1.54
Limnephilidae	3	3.45	2.61
Planariidae (incl. Dugesiidae)	3	3.45	4.27
Sphaeriidae	3	3.45	4.63
Coenagriidae	2	2.30	0.71
Ephemerellidae	2	2.30	1.54
Lepidostomatidae	2	2.30	1.07
Lymnaeidae	2	2.30	2.49
Piscicolidae	2	2.30	1.90
Polycentropodidae	2	2.30	1.19
Baetidae	1	1.15	2.25
Corixidae	1	1.15	0.24
Dendrocoelidae	1	1.15	1.07
Erpobdellidae	1	1.15	1.42
Glossiphoniidae	1	1.15	1.66
Haliplidae	1	1.15	2.02
Heptageniidae	1	1.15	0.83
Leuctridae	1	1.15	0.95
Neritidae	1	1.15	0.24
Odontoceridae	1	1.15	0.83
Oligochaeta	1	1.15	0.71
Perlodidae	1	1.15	0.47
Physidae	1	1.15	0.83
Taeniopterygidae	1	1.15	0.47
Tipulidae	1	1.15	2.25

## **APPENDIX**

### **Results of individual sample audits**

# EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 11.5.95

WATER-  
COURSE: Cudworth Dike

PRIMARY  
ANALYST: FC

AQC  
ANALYST: JB

SITE: d/s STW

CODE: 2337

SORT/AQC  
METHOD: Preserved/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

Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi 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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 9.5.95

WATER-

PRIMARY

AQC

COURSE: Hooton Pagnell Beck

ANALYST: FC

ANALYST: RJJ

SITE: Hooton Pagnell

CODE: 2123

SORT/AQC

METHOD: Preserved/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

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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 15.3.95

WATER-COURSE: Dearne

PRIMARY ANALYST: KR

AQC ANALYST: VH

SITE: Adwick-upon Dearne

CODE: 0094

SORT/AQC METHOD: Preserved/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

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: Northumbria & Yorkshire      LABORATORY: S.Yorkshire      DATE: 5.4.95  
WATER-      PRIMARY      AQC  
COURSE: Tyresal Beck      ANALYST: KR      ANALYST: JB  
SITE: d/s Smalewell STW      CODE: 2444      SORT/AQC  
METHOD: Preserved/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

Polycentropodidae	Polycentropus sp. 1 only	9
-------------------	--------------------------	---

### 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      | 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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 20.4.95

WATER-COURSE: Little Don

PRIMARY ANALYST: KR

AQC ANALYST: VH

SITE: Deeplar

CODE: 0198

SORT/AQC METHOD: Preserved/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

Physidae	Physa sp. (juvenile) 1 only	11
----------	-----------------------------	----

## 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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 27.4.95

WATER-  
COURSE: Bentley Brook

PRIMARY  
ANALYST: KR

AQC  
ANALYST: RJJ

SITE: d/s Flockton

CODE: 0034

SORT/AQC  
METHOD: Preserved/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

Leptophlebiidae	Habrophlebia fusca 1 only	11
-----------------	---------------------------	----

## 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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 10.5.95

WATER-COURSE: Aire

PRIMARY ANALYST: LBS

AQC ANALYST: VH

SITE: Crossflats

CODE: 2215

SORT/AQC METHOD: Preserved/Preserved

## RESULTS OF PRIMARY AUDIT

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

### VIAL

**BMWP taxa not found by IFE**

Oligochaeta \* 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**

Elmidae Elmis acnea (larvae) 1 only 11

Hydroptilidae Allotrichia pallicornis 1 only 9

Oligochaeta \* 7

## SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 1

NET EFFECTS:

ON BMWP SCORE 11

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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 3.5.95

WATER-

PRIMARY

AQC

COURSE: Swansike Dike

ANALYST: LBS

ANALYST: RJJ

SITE: u/s Great Common Drain

CODE: 2134

SORT/AQC

METHOD: Preserved/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

Lymnaeidae

Lymnaea peregra

11

## 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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 5.5.95

WATER-COURSE: Rother

PRIMARY ANALYST: LBS

AQC ANALYST: JB

SITE: Storforth Lane

CODE: 0249

SORT/AQC METHOD: Preserved/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

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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 5.4.95

WATER-COURSE: West Beck

PRIMARY ANALYST: RJJ

AQC ANALYST: JB

SITE: d/s Rainbow Springs

CODE: 2516

SORT/AQC

METHOD: Preserved/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

Hydrophilidae (incl. Hydraenidae)	Hydraena sp. (adult) 1 only	9
Elmidae	Elmis aenea (larva) 1 only	9
Planorbidae	Anisus vortex 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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 12.9.95

WATER-  
COURSE: Little Went

PRIMARY  
ANALYST: FC

AQC  
ANALYST:

SITE: d/s Carleton STW

CODE: 0201

SORT/AQC  
METHOD: 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

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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 8.9.95

WATER-COURSE: Rother

PRIMARY ANALYST: FC

AQC ANALYST: JB

SITE: Renishaw

CODE: 2056

SORT/AQC METHOD: Preserved/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

Elmidae	Elmis aenea (adults + larva)	9
---------	------------------------------	---

## 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

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: Northumbria & Yorkshire	LABORATORY: S.Yorkshire	DATE: 3.10.95
WATER- COURSE: Malham Beck	PRIMARY ANALYST: FC	AQC ANALYST: VH
SITE: u/s Malham STW	CODE: 2138	SORT/AQC METHOD: Preserved/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**

Nemouridae	Protonemura sp. (juvenile) 1 only	9
------------	-----------------------------------	---

### 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      | 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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 10.10.95

WATER-COURSE: Brighthouse Beck

PRIMARY ANALYST: FC

AQC ANALYST: RJJ

SITE: u/s Worth

CODE: 2359

SORT/AQC METHOD: Preserved/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

Hydrophilidae (incl. Hydraenidae)	Hydraena gracilis (adult) 1 only	11
Planariidae (incl. Dugesiidae)	Polycelis nigra/tenuis 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
- 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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 29.11.95

WATER-  
COURSE: Rockley Dike

PRIMARY  
ANALYST: FC

AQC  
ANALYST:

SITE: u/s Warsborough Reservoir

CODE: 2289

SORT/AQC  
METHOD: Preserved

## RESULTS OF PRIMARY AUDIT

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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: Northumbria & Yorkshire      LABORATORY: S. Yorkshire      DATE: 28.9.95  
WATER-      PRIMARY      AQC  
COURSE: Womersley Beck      ANALYST: JB      ANALYST:  
SITE: d/s NCB Womersley      CODE: 2319      SORT/AQC  
METHOD: 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

Haliplidae	Haliplus ruficollis group (adult + larva)	9
Erpobdellidae	Erpobdella octoculata	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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 14.9.95

WATER-  
COURSE: Rivelin

PRIMARY  
ANALYST: LBS

AQC  
ANALYST:

SITE: Holling Bridge

CODE: 0245

SORT/AQC  
METHOD: 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

Psychomyiidae (incl. Ecnomidae)	Extra Rhyacophila sp. (juvenile) in vial	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

Odontoceridae	Odontocerum albicorne 1 only	9
Leptophlebiidae	Paraleptophlebia sp. 1 only	9

## SUMMARY OF AUDIT

LOSSES 1

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 12

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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 16.11.95

WATER-  
COURSE: Sheffield Beck

PRIMARY  
ANALYST: LBS

AQC  
ANALYST:

SITE: Near pond

CODE: 2230

SORT/AQC  
METHOD: 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

Tipulidae \*

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

Tipulidae \*

Tipula montium group 1 only

1

## SUMMARY OF AUDIT

LOSSES 0

GAINS 0

OMISSIONS: 1

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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 15.9.95

WATER-

PRIMARY

AQC

COURSE: Chellow Dean Beck

ANALYST: LFM

ANALYST:

SITE: Nr Woollen Mill

CODE: 2413

SORT/AQC

METHOD: 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

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: Northumbria & Yorkshire      LABORATORY: S.Yorkshire      DATE: 21.9.95  
WATER-      PRIMARY      AQC  
COURSE: Meanwood Beck      ANALYST: LFM      ANALYST: RJJ  
SITE: Bustlingthorpe Lane      CODE: 2428      SORT/AQC  
METHOD: Preserved/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

Dendrocoelidae	Dendrocoelum lacteum	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

Psychomyiidae (incl. Ecnomidae)	Lype sp. 1 only	11
Limnephilidae	Indet Limnephilid (juvenile) 1 only	9

## SUMMARY OF AUDIT

LOSSES 0      GAINS 3      OMISSIONS: 0

### NET EFFECTS:

ON BMWP SCORE 20

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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 26.9.95

WATER-  
COURSE: Hebble Brook

PRIMARY  
ANALYST: LFM

AQC  
ANALYST: VH

SITE: d/s Salter Hebble

CODE: 0172

SORT/AQC  
METHOD: Preserved/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

Elmidae	Scolytidae (adult)	12
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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

Dendrocoelidae	Dendrocoelum lacteum 1 only	9
Lymnaeidae	Lymnaea peregra 1 only	11

## SUMMARY OF AUDIT

LOSSES 1

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 3

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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 18.9.95

WATER-COURSE: Foulness

PRIMARY ANALYST: RJJ

AQC ANALYST:

SITE: Major Bridge

CODE: 0157

SORT/AQC METHOD: 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

Planorbidae

Gyraulus albus 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
- 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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 10.10.95

WATER-

PRIMARY

AQC

COURSE: Barmston Main Drain

ANALYST: RJJ

ANALYST: VH

SITE: Barmston

CODE: 0027

SORT/AQC

METHOD: Preserved/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

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: Northumbria & Yorkshire	LABORATORY: S. Yorkshire	DATE: 3.10.95
WATER- COURSE: Otterburn Beck	PRIMARY ANALYST: RJJ	AQC ANALYST:
SITE: u/s Bell Bush STW & Trout Farm	CODE: 0493	SORT/AQC METHOD: 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**

Chironomidae *	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**

Chironomidae *	Chironomini	1
Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi 1 only	9
Planorbidae	Indet Planorbid (shell broken) 1 only	9

### SUMMARY OF AUDIT

LOSSES 0      GAINS 2      OMISSIONS: 1

#### NET EFFECTS:

**ON BMWP SCORE 6**  
**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: Northumbria & Yorkshire

LABORATORY: S.Yorkshire

DATE: 26.9.95

WATER-COURSE: Cononley Beck

PRIMARY ANALYST: VH

AQC ANALYST:

SITE: u/s R.Aire

CODE: 0398

SORT/AQC METHOD: 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

Heptageniidae	Rhithrogena sp. 1 only	9
Perlodidae	Isoperla grammatica 1 only	9
Planariidae (incl. Dugesiidae)	Polycelis felina	9
Piscicolidae	Piscicola geometra 1 only	9
Planorbidae	Gyraulus albus 1 only	9
Sphaeriidae	Indet Sphaeriid 1 only	9

## SUMMARY OF AUDIT

LOSSES 0

GAINS 6

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 35

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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 18.10.95

WATER-COURSE: Dearne

PRIMARY ANALYST: VH

AQC ANALYST: JB

SITE: Little Houghton Bridge

CODE: 2072

SORT/AQC METHOD: Preserved/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

Sphaeriidae	Pisidium sp. 1 only	11
Simuliidae	Simulium erythrocephalum	11
Coenagriidae	Indet Coenagriid (juvenile) 1 only	9

## SUMMARY OF AUDIT

LOSSES 0

GAINS 3

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 14

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: Northumbria & Yorkshire

LABORATORY: S. Yorkshire

DATE: 26.9.95

WATER-  
COURSE: Aire

PRIMARY  
ANALYST: LFM/JB/FC

AQC  
ANALYST: RJJ

SITE: Carlton, u/s Eller Beck

CODE: 2102

SORT/AQC  
METHOD: Preserved/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

Dytiscidae (incl. Noteridae)	Platambus maculatus (larva) 1 only	11
Gyrinidae	Orectochilus villosus (larvae)	9
Hydrophilidae (incl. Hydraenidae)	Hydraena gracilis (adults)	11
Taeniopterygidae	Taeniopteryx nebulosa	9

## SUMMARY OF AUDIT

LOSSES 0

GAINS 4

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 25

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 15.3.95

WATER-COURSE: Coquet

PRIMARY ANALYST: EC

AQC ANALYST:

SITE: Coquet Lodge

CODE: 02 0400

SORT/AQC METHOD: 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

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 11.4.95

WATER-COURSE: Wreigh Burn

PRIMARY ANALYST: EC

AQC ANALYST:

SITE: Thropton

CODE: 02 0640

SORT/AQC METHOD: 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

Psychomyiidae (incl. Ecnomidae)                      Psychomyia pusilla 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
- 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: Northumbria & Yorkshire      LABORATORY: Northumbria      DATE: 18.5.95  
WATER-      PRIMARY      AQC  
COURSE: Wansbeck      ANALYST: GH      ANALYST:  
SITE: Middleton Manor      CODE: 02 0820      SORT/AQC  
METHOD: 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

Corixidae      Micronecta sp. (nymph) 1 only      9

### 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

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 17.5.95

WATER-COURSE: Pegwhistle Burn

PRIMARY ANALYST: GH

AQC ANALYST:

SITE: Plessey Wood

CODE: 02 0990

SORT/AQC METHOD: 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	Dicranota sp. 1 only	9
Elmidae	Elmis aenea (adult + larvae)	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
- 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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 18.5.95

WATER-COURSE: Cotting Burn

PRIMARY ANALYST: GH

AQC ANALYST:

SITE: u/s Hospital STW

CODE: 02 0855

SORT/AQC METHOD: 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**

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: Northumbria & Yorkshire	LABORATORY: Northumbria	DATE: 12.4.95
WATER-COURSE: Pont	PRIMARY ANALYST: GH	AQC ANALYST:
SITE: Ponteland	CODE: 02 1023	SORT/AQC METHOD: 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**

Corixidae	7
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**Additional BMWP taxa found by IFE**

Notonectidae	Notonecta glauca	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**

Hydrophilidae (incl. Hydraenidae)	Indet Hydrophilid (larva) 1 only	9
Psychomyiidae (incl. Ecnomidae)	Lype sp. 1 only	9

### SUMMARY OF AUDIT

**LOSSES 1      GAINS 3**

**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: Northumbria & Yorkshire      LABORATORY: Northumbria      DATE: 11.4.95  
WATER-      PRIMARY      AQC  
COURSE: Wear      ANALYST: JH      ANALYST:  
SITE: Daddry Shield      CODE: 02 2205      SORT/AQC  
METHOD: 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

Hydroptilidae	Hydroptila sp. 1 only	9
Simuliidae	Simulium ornatum group 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	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: Northumbria & Yorkshire	LABORATORY: Northumbria	DATE: 16.5.95
WATER-COURSE: Castle Eden Burn	PRIMARY ANALYST: JH	AQC ANALYST:
SITE: Hordon	CODE: 02 2870	SORT/AQC METHOD: 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**

Baetidae	Fungal infected Baetid in vial	5
Hydrobiidae (incl. Bithyniidae) *		4

**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**

Hydrobiidae (incl. Bithyniidae) *	Potamopyrgus jenkinsi 1 only	9
Sphaeriidae	Sphaerium sp. 1 only	9

### SUMMARY OF AUDIT

LOSSES 1

GAINS 1

OMISSIONS: 1

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 3.5.95

WATER-  
COURSE: Croxdale

PRIMARY  
ANALYST: JH

AQC  
ANALYST: VW

SITE: Croxdale House

CODE: 02 2420

SORT/AQC  
METHOD: 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**

Simuliidae

Simulium ornatum group (pupa) 1 only

9

### 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)

## EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Northumbria & Yorkshire      LABORATORY: Northumbria      DATE: 12.4.95  
WATER-      PRIMARY      AQC  
COURSE: Black Burn      ANALYST: VW      ANALYST:  
SITE: Midgeholme      CODE: 02 1780      SORT/AQC  
METHOD: 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

Baetidae	Baetis rhodani	9
Hydroptilidae	Hydroptila sp. 1 only	9
Lepidostomatidae	Crunoecia irrorata 1 only	9

### SUMMARY OF AUDIT

LOSSES 0      GAINS 3      OMISSIONS: 0

### NET EFFECTS:

ON BMWP SCORE 20  
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: Northumbria & Yorkshire      LABORATORY: Northumbria      DATE: 28.9.95  
WATER-      PRIMARY      AQC  
COURSE: How Burn      ANALYST: EC      ANALYST:  
SITE: Butterwell OCCS      CODE: 845      SORT/AQC  
METHOD: 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

Nemouridae	Nemurella picteti 1 only	9
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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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 2.11.95

WATER-COURSE: Wooler Water

PRIMARY ANALYST: EC

AQC ANALYST:

SITE: Coldgate Mill

CODE: 130

SORT/AQC METHOD: 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

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 1.11.95

WATER-  
COURSE: Deerness

PRIMARY  
ANALYST: JH

AQC  
ANALYST:

SITE: Esh Winning

CODE: 2530

SORT/AQC  
METHOD: 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

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 5.10.95

WATER-COURSE: Swarland Burn

PRIMARY ANALYST: JH

AQC ANALYST:

SITE: Swarland Fence

CODE: 580

SORT/AQC METHOD: 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

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: Northumbria & Yorkshire      LABORATORY: Northumbria      DATE: 26.9.95  
WATER-      PRIMARY      AQC  
COURSE: Browney      ANALYST: SL      ANALYST:  
SITE: Stone Bridge      CODE: 2485      SORT/AQC  
METHOD: 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

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 21.9.95

WATER-COURSE: Lewis Burn

PRIMARY ANALYST: VW

AQC ANALYST:

SITE: Unnamed

CODE: 2040

SORT/AQC METHOD: 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

Hydrophilidae (incl. Hydraenidae)	Hydraena gracilis (adults)	9
Oligochaeta	Nais sp. 1 only	9

## SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 6

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: Northumbria & Yorkshire

LABORATORY: Northumbria

DATE: 20..9.95

WATER-COURSE: Warks Burn

PRIMARY ANALYST: VW

AQC ANALYST: EC

SITE: B6320 Bridge

CODE: 1870

SORT/AQC METHOD: Preserved/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

Dytiscidae (incl. Noteridae)	Oreodytes sanmarkii (adult) 1 only	9
Glossiphoniidae	Glossiphonia complanata 1 only	11

## 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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 11.5.95

WATER-COURSE: Leven

PRIMARY ANALYST: EA

AQC ANALYST:

SITE: East Angrove

CODE: 0956

SORT/AQC METHOD: 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

Ephemereidae	Ephemereella ignita	9
Hydrophilidae (incl. Hydraenidae)	Hydraena gracilis (adults)	9
Dytiscidae (incl. Noteridae)	Potamonectes depressus (adult), Agabus sp. (larva)	9
Hydroptilidae	Hydroptila sp. 1 only	9
Nemouridae	Amphinemura standfussi 1 only	9
Limnephilidae	Potamophylax latipennis	9

## SUMMARY OF AUDIT

LOSSES 0

GAINS 6

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 40

ON NO. OF TAXA 6

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 22.3.95

WATER-  
COURSE: Wharfe

PRIMARY  
ANALYST: JC

AQC  
ANALYST: EA

SITE: Castley

CODE: 0337

SORT/AQC  
METHOD: Preserved/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, C.rivulorum	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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 11.4.95

WATER-COURSE: Burn

PRIMARY ANALYST: JC

AQC ANALYST: EA

SITE: Healey

CODE: 0623

SORT/AQC METHOD: Preserved/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

Gyrinidae	Orectochilus villosus (larva) 1 only	11
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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)

## EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: Northumbria & Yorkshire	LABORATORY: Dales	DATE: 16.3.95
WATER-COURSE: Oak Beck	PRIMARY ANALYST: JC	AQC ANALYST: EA
SITE: Knox	CODE: 0231	SORT/AQC METHOD: Preserved/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**

Hydropsychidae *	3
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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**

Hydropsychidae *	Hydropsyche siltalai	3
Nemouridae	Nemoura sp. (juvenile) 1 only	9
Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi	9

### SUMMARY OF AUDIT

**LOSSES 0**

**GAINS 2**

**OMISSIONS: 1**

**NET EFFECTS:**

**ON BMWP SCORE 10**

**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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 28.4.95

WATER-COURSE: Skerne

PRIMARY ANALYST: JC

AQC ANALYST:

SITE: Great Burdon

CODE: 5247

SORT/AQC METHOD: 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

Hydrobiidae (incl. Bithyniidae)	Potamopyrgus jenkinsi 1 only	9
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## 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

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 2.5.95

WATER-  
COURSE: Skerne

PRIMARY  
ANALYST: KD

AQC  
ANALYST: EA

SITE: Parkside

CODE: 02 5249

SORT/AQC  
METHOD: Preserved/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**

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 27.4.95

WATER-COURSE: Pocklington Beck

PRIMARY ANALYST: SW

AQC ANALYST: GJB

SITE: Pocklington Wood

CODE: 0912

SORT/AQC METHOD: Preserved/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

Planariidae (incl. Dugesidae)	Polycelis felina 1 only	9
Dytiscidae (incl. Noteridae)	Orcodytes sanmarkii (adults)	11
Limnephilidae	Indet Limnephilid (juveniles)	11
Leptophlebiidae	Paraleptophlebia submarginata 1 only	9
Ephemerellidae	Ephemerella ignita 1 only	9

## SUMMARY OF AUDIT

LOSSES 0

GAINS 5

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 37

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 22.3.95

WATER-  
COURSE: Kex Beck

PRIMARY  
ANALYST: SW

AQC  
ANALYST: GJB

SITE: Beamsley

CODE: 0190

SORT/AQC  
METHOD: Preserved/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

Hydrophilidae (incl. Hydraenidae)	Hydraena gracilis (adult) 1 only	11
Polycentropodidae	Polycentropus flavomaculatus 1 only	9

## SUMMARY OF AUDIT

LOSSES 0

GAINS 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 12

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 4.5.95

WATER-COURSE: Dove

PRIMARY ANALYST: SW

AQC ANALYST:

SITE: Keldholme

CODE: 0129

SORT/AQC METHOD: 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

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 31.5.95

WATER-COURSE: Ouse

PRIMARY ANALYST: SW

AQC ANALYST: GJB

SITE: Scarborough Railway Bridge

CODE: 10 0919

SORT/AQC

METHOD: Preserved/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

Piscicolidae	Piscicola geometra 1 only	9
Neritidae	Theodoxus fluviatilis 1 only	9
Coenagriidae	Indet Coenagriid (juvenile) 1 only	11
Leuctridae	Leuctra geniculata	11

### SUMMARY OF AUDIT

LOSSES 0      GAINS 4

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 26

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 26.10.95

WATER-COURSE: Derwent

PRIMARY ANALYST: JC

AQC ANALYST: EA

SITE: Sherburn

CODE: 10 0936

SORT/AQC METHOD: Preserved/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, C.horaria

9

### 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: Northumbria & Yorkshire	LABORATORY: Dales	DATE: 25.10.95
WATER-COURSE: Nidd	PRIMARY ANALYST: KD	AQC ANALYST:
SITE: Holme Bottom	CODE: 10 0928	SORT/AQC METHOD: 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**

Psychomyiidae (incl. Ecnomidae) *	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**

Simuliidae	Simulium (Wilhelmia) sp. (larvae), S.aureum group (pupa)	9
Psychomyiidae (incl. Ecnomidae) *	Psychomyia pusilla	1
Hydroptilidae	Hydroptila sp. (pupa) 1 only	9
Hydrophilidae (incl. Hydraenidae)	Hydraena gracilis (adults)	9

### SUMMARY OF AUDIT

LOSSES 0

GAINS 3

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 12.9.95

WATER-COURSE: Nidd

PRIMARY ANALYST: KD

AQC ANALYST: EA

SITE: Walshford Bridge

CODE: 10 0217

SORT/AQC METHOD: Preserved/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

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 12.9.95

WATER-  
COURSE: Thornton Beck

PRIMARY  
ANALYST: KD

AQC  
ANALYST:

SITE: Bedlam

CODE: 10 0593

SORT/AQC  
METHOD: 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

Scirtidae	Elodes sp. (larvae)	6
Limnephilidae	Indet Limnephilid (pupa) - listed as caddis pupa under "other taxa" on data sheet	6

### 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 2

OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 12

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: Northumbria & Yorkshire

LABORATORY: Dales

DATE: 12.9.95

WATER-COURSE: Nidd

PRIMARY ANALYST: SW

AQC ANALYST: GJB

SITE: Knaresborough

CODE: 10 0228

SORT/AQC METHOD: Preserved/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**

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: Northumbria & Yorkshire	LABORATORY: Dales	DATE: 12.9.95
WATER-COURSE: Nidd	PRIMARY ANALYST: SW	AQC ANALYST:
SITE: u/s Thornton Beck	CODE: 10 0929	SORT/AQC METHOD: 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**

Hydroptilidae	Hydroptila sp. 1 only	9
Gyrinidae	Orectochilus villosus (larvae)	9
Caenidae	Caenis luctuosa/macrura	9
Psychomyiidae (incl. Ecnomidae)	Psychomyia pusilla 1 only	9
Lepidostomatidae	Lepidostoma hirtum	9

### SUMMARY OF AUDIT

LOSSES 0      GAINS 5      OMISSIONS: 0

**NET EFFECTS:**

**ON BMWP SCORE 36**  
**ON NO. OF TAXA 5**

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)**