An audit of performance in the analysis of biological samples in 1995
NRA South Western Region: AQC Audit

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NRA South Western Region: AQC 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 53 AQC'd samples audited for NRA South Western Region and represents a measure of the performance of the AQC analyst rather than that of the primary analyst. The results of the Primary Audit, detailing the performance of primary analysts for all 60 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 AQC audit for South Western Region are summarised by area in Tables 1 to 4. Table 5 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 6 compares these results for each NRA Region and Area laboratory. Table 7 presents data for South Western Region for the net effects of the AQC 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 8 compares this BMWP data for each NRA Region and Area laboratory. Table 9 lists the taxa missed in sorting by South Western Region's AQC analysts in the 1995 audit and Table 10 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 15 AQC'd samples audited for Devon Area

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<tr>
<th>River</th>
<th>Site</th>
<th>AQC Analyst</th>
<th>Losses</th>
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<th>Omissions</th>
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<td>0</td>
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<td>0</td>
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<th>Omissions</th>
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Table 3. The 14 AQC’d samples audited for North Wessex Area

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Table 4. The 9 AQC'd samples audited for South Wessex Area

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Table 5. Statistics of 1995 AQC Audit results for South Western Region

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<tr>
<th>Analyst/Group</th>
<th>n</th>
<th>Mean gains</th>
<th>Standard error</th>
<th>No. samples</th>
<th>% samples</th>
<th>Highest no. gains</th>
<th>Mean errors</th>
<th>Standard error</th>
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<td>S.Eastern</td>
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<td>% of missed taxa in AQC Audit for all NRA Regions</td>
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<td>4.35</td>
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Table 10. Missed taxa for all samples in 1995 audit

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<td>Platycnemidida</td>
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<td>Viviparida</td>
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APPENDIX

Results of individual sample audits
EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: South Western  LABORATORY: Devon  DATE: 9.3.95
WATER-  PRIMARY  AQC
COURSE: Caen  ANALYST: AA  ANALYST: AH
SITE: St. Brannocks  CODE: NRA06 3001  SORT/AQC: Preserved/Preserved

METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIAL</td>
<td>BMWP taxa not found by IFE</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Additional BMWP taxa found by IFE</td>
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</tr>
<tr>
<td>SAMPLE</td>
<td>BMWP taxa not found by IFE</td>
<td>(For samples where vial is broken or absent)</td>
</tr>
<tr>
<td></td>
<td>N/a</td>
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<tr>
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<td>Additional BMWP taxa found by IFE</td>
<td>None</td>
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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: South Western  LABORATORY: Devon  DATE: 30.3.95
WATER-COURSE: Mole  PRIMARY AQC  ANALYST: AH
SITE: d/s FE discharge  CODE: NRA063080  METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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

**BMWP taxa not found by IFE**
None

**Additional BMWP taxa found by IFE**
None

**SAMPLE**

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

**Additional BMWP taxa found by IFE**
Leptoceridae
Piscicolidae

<p>| | |</p>
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<td>Athripsodes sp. (juvenile) 1 only</td>
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<td>Piscicola geometra 1 only</td>
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SUMMARY OF AUDIT

LOSSES 0  GAINS 2  OMISSIONS: 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: South Western
LABORATORY: Devon
DATE: 16.3.95

WATER-COURSE: Holewater
PRIMARY
ANALYST: LK

SITE: u/s Linkleyham Bridge
CODE: NRA06 3032
AQC
ANALYST: LB

RESULTS OF MAIN AUDIT

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

VIAL

BMWP taxa not found by IFE
None

Additional BMWP taxa found by IFE
None

SAMPLE

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

Additional BMWP taxa found by IFE
Ancylidae (incl. Acroloxidae)   Ancylus fluviatilis 1 only
Tipulidae                        Dicranota sp. 1 only

SUMMARY OF AUDIT

LOSSES 0    GAINS 2    OMISSIONS: 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)

NET EFFECTS:

ON BMWP SCORE    11
ON NO. OF TAXA    2
EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: South Western
WATER-COURSE: Langham Lake
SITE: u/s Bridge

LABORATORY: Devon
PRIMARY
ANALYST: AA
CODE: NRA06 3008

DATE: 15.3.95
AQC
ANALYST: LB
SORT/AQC
METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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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
Hydropsychidae

Diplectrona felix 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: South Western  
LABORATORY: Devon  
DATE: 18.4.95  
WATER-COURSE: Drimpton Stream  
PRIMARY  
ANALYST: LK  
AQC  
ANALYST: LB  
SORT/AQC  
METHOD: Preserved/Preserved  
CODE: NRA06 0217  

SITE: u/s Ford, Netherhay

RESULTS OF MAIN AUDIT

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SUMMARY OF AUDIT

LOSSES 0  GAINS 0  OMISSIONS: 0  NET EFFECTS:

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: South Western
WATER-COURSE: Culm
SITE: Silverton Mill

LABORATORY: Devon
PRIMARY ANALYST: AA
CODE: 06 0577 - D3
DATE: 2.5.95
AQC ANALYST: LMB
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
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<tbody>
<tr>
<td>VIAL</td>
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<tr>
<td>BMWP taxa not found by IFE</td>
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<tr>
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<tr>
<td>SAMPLE</td>
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<tr>
<td>BMWP taxa not found by IFE</td>
<td>(For samples where vial is broken or absent)</td>
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<tr>
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<td>Leptoceridae</td>
<td>Athripsodes sp. (juveniles)</td>
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<tr>
<td>Tipulidae</td>
<td>Antocha vitripennis (pupa) I only</td>
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</table>

SUMMARY OF AUDIT

LOSSES 0  GAINS 2  OMISSIONS: 0  NET EFFECTS:

ON BMWP SCORE 15
ON NO. OF TAXA 2

1 No representative of family in vial
2 Alternative terrestrial specimen in vial
3 Posterior end only in vial
4 Empty shell or case or cast skin in vial
5 Specimen dead at time of sampling
6 Taxon in vial but not recorded
7 Mis-identification
8 Typographical error - wrong box ticked
9 Taxon missed in sorting
10 Unexplained error
11 Taxon added in internal AQC
12 Recorded taxon that was rejected by AQC analyst

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

REGION: South Western
LABORATORY: Devon
DATE: 5.5.95

WATER-COURSE: Teign
PRIMARY ANALYST: AA
AQC ANALYST: LK

SITE: Clifford Bridge
CODE: 06 0631 - D4
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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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:

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 Misidentification
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: South Western
WATER-COURSE: Holy Brook
SITE: Northwood, Buckfast

LABORATORY: Devon
PRIMARY ANALYST: AH
CODE: 06 0714 - E3

DATE: 16.5.95
AQC ANALYST: LK
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<td>Scirtidae Hydropyphon deflexicollis (larvae) 9</td>
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<td></td>
<td>Leptoceridae Oecetis testacea 1 only</td>
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SUMMARY OF AUDIT

LOSSES 0  GAINS 2  OMISSIONS: 0  NET EFFECTS:

ON BMWP SCORE 15
ON NO. OF TAXA 2

1 No representative of family in vial
2 Alternative terrestrial specimen in vial
3 Posterior end only in vial
4 Empty shell or case or cast skin in vial
5 Specimen dead at time of sampling
6 Taxon in vial but not recorded
7 Mis-identification
8 Typographical error - wrong box ticked
9 Taxon missed in sorting
10 Unexplained error
11 Taxon added in internal AQC
12 Recorded taxon that was rejected by AQC analyst

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

REGION: South Western  LABORATORY: Devon  DATE: 26.9.95
WATER-  PRIMARY  AQC
COURSE: Hookmoor Brook  ANALYST: LK  ANALYST: AH
SITE: Narracott  CODE: 2955-H1  METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
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<tr>
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<tr>
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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:** South Western  
**LABORATORY:** Devon  
**DATE:** 10.10.95  
**WATER-COURSE:** Danes Brook  
**SITE:** Hawkridge  
**CODE:** 0555-12

**PRIMARY ANALYST:** PG  
**AQC ANALYST:** AH  
**METHOD:** Preserved/Preserved

### RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name</th>
<th>Presumed cause of error</th>
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<tbody>
<tr>
<td>Lepidostorna hirtum</td>
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</table>

**VIAL**

**BMWP taxa not found by IFE**
- Odontoceridae

**Additional BMWP taxa found by IFE**
- Lepidostorna hirtum

**SAMPLE**

**BMWP taxa not found by IFE**
- N/a

**Additional BMWP taxa found by IFE**
- None

### SUMMARY OF AUDIT

**LOSSES** 1  
**GAINS** 0  
**OMISSIONS:** 0  
**NET EFFECTS:**

- **ON BMWP SCORE** -10
- **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: South Western
LABORATORY: Devon
DATE: 24.10.95
WATER-COURSE: Aller Brook
PRIMARY
ANALYST: AA
ANALYST: AH
SITE: Aller Orchard
CODE: 0602-J4
SORT/AQC
METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
</table>

VIAL

BMWP taxa not found by IFE
None

Additional BMWP taxa found by IFE
None

SAMPLE

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

Additional BMWP taxa found by IFE
Planariidae (incl. Dugesiidae)  
Polycelis felina 1 only  


SUMMARY OF AUDIT

LOSSES 0  GAINS 1  OMISSIONS: 0  NET EFFECTS:

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: South Western
WATER-COURSE: Otter
SITE: Hoemoor Farm

LABORATORY: Devon
PRIMARY ANALYST: AH
CODE: 0401-H3

DATE: 4.10.95
AQC ANALYST: LMB
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name</th>
<th>Presumed cause of error</th>
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<tbody>
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<td>(where appropriate)</td>
</tr>
<tr>
<td></td>
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<td>(see footnotes)</td>
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</table>

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: South Western  LABORATORY: Devon  DATE: 13.10.95
WATER-COURSE: Dart (Exe Trib)  PRIMARY  AQC
SITE: Dart Bridge, Bickleigh  ANALYST: LK  ANALYST: LMB
CODE: 0534-15  METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

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

LOSES 0  GAINS 0  OMISSIONS: 0  NET EFFECTS:

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: South Western
WATER-COURSE: Polly Brook
SITE: A376 Bridge, Exton
LABORATORY: Devon
PRIMARY
ANALYST: AA
CODE: 0566-11

DATE: 9.10.95
AQC
ANALYST: LK
SORT/AQC
METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

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. (pupae) 9

SUMMARY OF AUDIT

LOSES 0   GAINS 1   OMISSIONS: 0

NET EFFECTS:
ON BMWP SCORE 6
ON NO. OF TAXA 1

1 No representative of family in vial
2 Alternative terrestrial specimen in vial
3 Posterior end only in vial
4 Empty shell or case or cast skin in vial
5 Specimen dead at time of sampling
6 Taxon in vial but not recorded
7 Mis-identification
8 Typographical error - wrong box ticked
9 Taxon missed in sorting
10 Unexplained error
11 Taxon added in internal AQC
12 Recorded taxon that was rejected by AQC analyst

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

REGION: South Western  LABORATORY: Devon  DATE: 12.10.95
WATER-COURSE: Exe  PRIMARY  AQC
SITE: Winsford  ANALYST: AA  ANALYST: LK
CODE: 0547-14  SORT/AQC  METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

**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

<table>
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<th>OMISSIONS</th>
<th>NET EFFECTS</th>
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**ON BMWP SCORE 0**

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

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

REGION: South Western
WATER-COURSE: Gwindra Stream
SITE: Treway Bridge
LABORATORY: Cornwall
PRIMARY ANALYST: SDT
AQC ANALYST: KAI
SORT/AQC METHOD: Preserved/Preserved
DATE: 20.3.95
CODE: NRA06 1926

RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

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:

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: South Western
WATER-COURSE: Carbis Stream
SITE: U/s Luxulyan

LABORATORY: Cornwall
PRIMARY ANALYST: TAB
CODE: NRA06 1614

DATE: 23.3.95
AQC ANALYST: SDT
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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<td>(For samples where vial is broken or absent)</td>
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SUMMARY OF AUDIT

LOSSES 0  GAINS 0  OMISSIONS: 0  NET EFFECTS:

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: South Western
WATER-COURSE: East Looe
SITE: d/s Moorswater

LABORATORY: Cornwall
PRIMARY ANALYST: KAI
CODE: NRA06 1419

AQC ANALYST: SDT
SORT/AQC METHOD: Preserved/Preserved

DATE: 29.3.95

RESULTS OF MAIN AUDIT

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<td>Additional BMWP taxa found by IFE</td>
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VIAL

SAMPLE

SUMMARY OF AUDIT

LOSSES 0 GAINS 0 OMISSIONS: 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: South Western
WATER-COURSE: Fowey
SITE: Harrowbridge

LABORATORY: Cornwall
PRIMARY ANALYST: KAI
CODE: NRA06 1512

DATE: 3.4.95
AQC ANALYST: TAB
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<th>Presumed cause of error (see footnotes)</th>
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<tr>
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<td>(For samples where vial is broken or absent)</td>
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<td>N/a</td>
<td>Polycentropodidae</td>
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<td>Scirtidae</td>
<td>Elodes sp. (larva) 1 only</td>
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SUMMARY OF AUDIT

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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: South Western
WATER-COURSE: Ottery
SITE: Canworthy Water Bridge

LABORATORY: Cornwall
PRIMARY ANALYST: KAD
CODE: NRA06 1255

DATE: 4.4.95
AQC ANALYST: TAB
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
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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
None
Additional BMWP taxa found by IFE
None

SUMMARY OF AUDIT

LOSSES 0  GAINS 0  OMISSIONS: 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:** South Western  
**LABORATORY:** Cornwall  
**DATE:** 25.9.95  
**WATER-COURSE:** Plym  
**PRIMARY ANALYST:** KAI  
**AQC ANALYST:** SDT  
**SITE:** Plym Bridge  
**CODE:** 06 1104  
**SORT/AQC METHOD:** Preserved/Preserved

### RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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<tbody>
<tr>
<td><strong>VIAL</strong></td>
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</tr>
<tr>
<td>BMWP taxa not found by IFE</td>
<td>None</td>
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<tr>
<td>Additional BMWP taxa found by IFE</td>
<td>None</td>
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<tr>
<td><strong>SAMPLE</strong></td>
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<tr>
<td>BMWP taxa not found by IFE</td>
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<tr>
<td>Additional BMWP taxa found by IFE</td>
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### SUMMARY OF AUDIT

<table>
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<th>GAINS</th>
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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: South Western
WATER-COURSE: Quither Brook
SITE: u/s R.Lyd

LABORATORY: Cornwall
PRIMARY
ANALYST: TAB
CODE: 06 1224

AQC
ANALYST: SDT
SORT/AQC
METHOD: Preserved/Preserved

DATE: 2.10.95

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

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
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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)
### RESULTS OF MAIN AUDIT

<table>
<thead>
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<th>Family name</th>
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<th>Presumed cause of error (see footnotes)</th>
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</thead>
<tbody>
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</table>

### 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: South Western  LABORATORY: Cornwall  DATE: 22.9.95
WATER-COURSE: Claw  PRIMARY  AQC
SITE: Tetcott Bridge  ANALYST: TAB  ANALYST: SDT
CODE: 06 1242  SORT/AQC
METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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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  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: South Western
WATER-COURSE: Ottery
SITE: Hellescott Bridge

LABORATORY: Cornwall
PRIMARY ANALYST: TAB
CODE: 06 1256

DATE: 2.10.95
AQC ANALYST: SDT
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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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
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8. Typographical error - wrong box ticked
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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: South Western
WATER-COURSE: Kensey
SITE: St.Leonards Bridge

LABORATORY: Cornwall
PRIMARY ANALYST: KAI
CODE: 061262

DATE: 2.10.95
AQC ANALYST: SDT
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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<th>Presumed cause of error (see footnotes)</th>
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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: South Western
WATER-COURSE: Fowey
SITE: Restormel
LABORATORY: Cornwall
DATE: 6.9.95
PRIMARY ANALYST: KAI
AQC ANALYST: SDT
SORT/AQC CODE: 1516
METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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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: South Western  LABORATORY: Cornwall  DATE: 12.10.95
WATER-COURSE: Par  PRIMARY  AQC  ANALYST: TAB  ANALYST: SDT
SITE: Trefry Viaduct  CODE: 1602  SORT/AQC  METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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<td>Additional BMWP taxa found by IFE</td>
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SUMMARY OF AUDIT

LOSSES 0  GAINS 0  OMISSIONS: 0  NET EFFECTS:

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: South Western  LABORATORY: Cornwall  DATE: 16.10.95
WATER-COURSE: Mevagissey Stream  PRIMARY  AQC
SITE: Mevagissey Car Park  ANALYST: KAI  ANALYST: SDT

CODE: 1805  SORT/AQC  METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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VIAL

BMWP taxa not found by IFE
None

Additional BMWP taxa found by IFE
Hydropsychidae  Diplectrona felix  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 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: South Western
LABORATORY: Cornwall
DATE: 27.9.95
WATER-COURSE: Penberth Stream
LABORATORY: Cornwall
DATE: 27.9.95
SITE: Penberth Bridge
CODE: 2201

EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

LABORATORY: Cornwall
DATE: 27.9.95
WATER-COURSE: Penberth Stream
LABORATORY: Cornwall
DATE: 27.9.95
SITE: Penberth Bridge
CODE: 2201

RESULTS OF MAIN AUDIT

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VIAL

BMWP taxa not found by IFE
None
Additional BMWP taxa found by IFE
Hydrobiidae (incl. Bithyniidae)
Potamopyrgus jenkinsi 12

SAMPLE

BMWP taxa not found by IFE
None
Additional BMWP taxa found by IFE
Hydrobiidae (incl. Bithyniidae)

RESULTS OF MAIN AUDIT

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<th>Family name</th>
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</table>

VIAL

BMWP taxa not found by IFE
None
Additional BMWP taxa found by IFE
Hydrobiidae (incl. Bithyniidae)
Potamopyrgus jenkinsi 12

SAMPLE

BMWP taxa not found by IFE
None
Additional BMWP taxa found by IFE
Hydrobiidae (incl. Bithyniidae)

SUMMARY OF AUDIT

LOSSES 0  GAINS 1  OMISSIONS: 0  NET EFFECTS:

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: South Western
WATER-COURSE: Sherston Avon
SITE: Cowdown Springs

LABORATORY: North Wessex
PRIMARY ANALYST: JF
CODE: 09 4903

DATE: 21.3.95
AQC ANALYST: AB
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<th>Family name</th>
<th>Species name (where appropriate)</th>
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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

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: South Western
WATER-COURSE: Sherston Avon
SITE: d/s Sherston STW
LABORATORY: South Wessex
DATE: 21.3.95
PRIMARY ANALYST: JP
CODE: 09 4905
AQC ANALYST: AB
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

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:

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

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
EXTERNAL AUDIT OF BIOLOGICAL SAMPLES

REGION: South Western  
LABORATORY: North Wessex  
DATE: 19.4.95
WATER-COURSE: Washford  
PRIMARY ANALYST: JF  
AQC ANALYST: APH
SITE: Whitehall Bridge  
CODE: 09 3506  
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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<th>Presumed cause of error (see footnotes)</th>
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SUMMARY OF AUDIT

LOSSES 0  GAINS 0  OMISSIONS: 0  NET EFFECTS:

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: South Western
WATER-COURSE: Chew Stoke Stream
SITE: u/s Public footbridge

LABORATORY: South Wessex
PRIMARY ANALYST: JJ
CODE: 09 5707

DATE: 26.4.95
AQC ANALYST: APH
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

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<td>BMWP taxa not found by IFE</td>
<td>None</td>
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</tr>
<tr>
<td>Additional BMWP taxa found by IFE</td>
<td>None</td>
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<tr>
<td>SAMPLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMWP taxa not found by IFE</td>
<td>(For samples where vial is broken or absent)</td>
<td>Leuctra geniculata 1 only</td>
</tr>
<tr>
<td>Additional BMWP taxa found by IFE</td>
<td></td>
<td>Helophorus brevipalpis, Hydraena sp.</td>
</tr>
<tr>
<td>Leuctridae</td>
<td></td>
<td>(adults)</td>
</tr>
<tr>
<td>Hydrophilidae (incl. Hydraenidae)</td>
<td></td>
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</tbody>
</table>

SUMMARY OF AUDIT

LOSSES 0  GAINS 2  OMISSIONS: 0  NET EFFECTS:
ON BMWP SCORE 15
ON NO. OF TAXA 2

1 No representative of family in vial
2 Alternative terrestrial specimen in vial
3 Posterior end only in vial
4 Empty shell or case or cast skin in vial
5 Specimen dead at time of sampling
6 Taxon in vial but not recorded
7 Mis-identification
8 Typographical error - wrong box ticked
9 Taxon missed in sorting
10 Unexplained error
11 Taxon added in internal AQC
12 Recorded taxon that was rejected by AQC analyst

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

REGION: South Western
WATER-COURSE: Haise Water
SITE: Roughmoor

LABORATORY: South Wessex
PRIMARY ANALYST: PRH
CODE: 09 3719

DATE: 29.3.95
AQC ANALYST: APH
SORT/AQC: Method: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
</table>

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: South Western
WATER-COURSE: Somer
SITE: d/s Chilcompton STW

LABORATORY: North Wessex
PRIMARY ANALYST: AH
CODE: 09 5617
DATE: 18.5.95
AQC ANALYST: JF
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

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: South Western  LABORATORY: South Wessex  DATE: 4.5.95
WATER-COURSE: Bristol Avon
SITE: Limpley Stoke  CODE: 09 4932

RESULTS OF MAIN AUDIT

<table>
<thead>
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<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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<tbody>
<tr>
<td>BMWP taxa not found by IFE</td>
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<tr>
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<tr>
<td>Dendrocoelidae</td>
<td>Dendrocoelum lacteum</td>
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</tr>
<tr>
<td>BMWP taxa not found by IFE</td>
<td>(For samples where vial is broken or absent)</td>
<td></td>
</tr>
<tr>
<td>N/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional BMWP taxa found by IFE</td>
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<td></td>
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<tr>
<td>Hydrophilidae (incl. Hydraenidae)</td>
<td>Helophorus flavipes/obscurus 1 only</td>
<td>9</td>
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</table>

SUMMARY OF AUDIT

LOSSES 0  GAINS 2  OMISSIONS: 0  NET EFFECTS:

<table>
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<th>Losses</th>
<th>Gains</th>
<th>Omissions</th>
<th>Net Effects</th>
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<td>1 No representative of family in vial</td>
<td>5 Specimen dead at time of sampling</td>
<td>9 Taxon missed in sorting</td>
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<tr>
<td>2 Alternative terrestrial specimen in vial</td>
<td>6 Taxon in vial but not recorded</td>
<td>10 Unexplained error</td>
<td></td>
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<tr>
<td>3 Posterior end only in vial</td>
<td>7 Mis-identification</td>
<td>11 Taxon added in internal AQC</td>
<td></td>
</tr>
<tr>
<td>4 Empty shell or case or cast skin in vial</td>
<td>8 Typographical error - wrong box ticked</td>
<td>12 Recorded taxon that was rejected by AQC analyst</td>
<td></td>
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</table>

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

REGION: South Western  
LABORATORY: North Wessex  
DATE: 15.9.95

WATER-COURSE: Gaze Brook  
PRIMARY ANALYST: JF  
AQC ANALYST: AB

SITE: u/s Hullavington STW  
CODE: 09 4959  
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
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</table>

VIAL

BMWP taxa not found by IFE
Hydrophilidae (incl. Hydraenidae)  
Additional BMWP taxa found by IFE  
Lathrididae adult in vial  
7

SAMPLE

BMWP taxa not found by IFE  
None

Additional BMWP taxa found by IFE  
None

(For samples where vial is broken or absent)

N/a

SUMMARY OF AUDIT

LOSSES 1  GAINS 0  OMISSIONS: 0  NET EFFECTS:

ON BMWP SCORE -5  
ON NO. OF TAXA -1

1 No representative of family in vial  
2 Alternative terrestrial specimen in vial  
3 Posterior end only in vial  
4 Empty shell or case or cast skin in vial  
5 Specimen dead at time of sampling  
6 Taxon in vial but not recorded  
7 Mis-identification  
8 Typographical error - wrong box ticked  
9 Taxon missed in sorting  
10 Unexplained error  
11 Taxon added in internal AQC  
12 Recorded taxon that was rejected by AQC analyst

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

REGION: South Western
WATER-COURSE: Huntspill
SITE: Solway Lane

LABORATORY: North Wessex
PRIMARY
ANALYST: APH
CODE: 4328

DATE: 3.10.95
AQC
ANALYST: AB
SORT/AQC
METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
</table>

**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
Hydropsychidae
Hydropsyche sp. 1 only

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: South Western
WATER-COURSE: Avill Tributary
SITE: Timberscombe
LABORATORY: North Wessex
DATE: 1.11.95
PRIMARY ANALYST: JF
CODE: 3403
AQC ANALYST: AB
METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
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<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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<tr>
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<td>BMWP taxa not found by IFE</td>
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<td>Additional BMWP taxa found by IFE</td>
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<td>None</td>
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<tr>
<td>SAMPLE</td>
<td>BMWP taxa not found by IFE</td>
<td>(For samples where vial is broken or absent)</td>
</tr>
<tr>
<td></td>
<td>N/a</td>
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<td></td>
<td>Additional BMWP taxa found by IFE</td>
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<tr>
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<td>None</td>
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</tbody>
</table>

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: South Western
LABORATORY: North Wessex
DATE: 5.9.95

WATER-COURSE: Halse Water
PRIMARY
ANALYST: APH

SITE: Roughmoor
CODE: 09 3719

LABORATORY: North Wessex
PRIMARY
ANALYST: APH

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
</table>

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:

1 No representative of family in vial  5 Specimen dead at time of sampling
2 Alternative terrestrial specimen in vial  6 Taxon in vial but not recorded
3 Posterior end only in vial  7 Mis-identification
4 Empty shell or case or cast skin in vial  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: South Western
WATER-COURSE: Yeo
SITE: Goathill
LABORATORY: North Wessex
PRIMARY ANALYST: JL
CODE: 094203
DATE: 6.9.95
AQC ANALYST: APH
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

**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: South Western
WATER-COURSE: North Drain
SITE: Tealham Moor

LABORATORY: North Wessex
PRIMARY ANALYST: APH
CODE: 09 4323
DATE: 2.10.95

AQC ANALYST: JF
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

VIAL

BMWP taxa not found by IFE
None

Additional BMWP taxa found by IFE
None

SAMPLE

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

Additional BMWP taxa found by IFE
Leptoceridae
Athripsodes aterrimus 1 only

Hydroptilidae
Oxyethira sp. (pupa) 1 only

SUMMARY OF AUDIT

LOSSES 0 GAINS 2 OMISSIONS: 0 NET EFFECTS:

ON BMWP SCORE 16
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: SouthWestern
WATER-COURSE: Chew
SITE: Chew Magna

LABORATORY: North Wessex
PRIMARY ANALYST: APH
CODE: 09 5706
DATE: 8.9.95
AQC ANALYST: JF
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
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<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

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: South Western
WATER-COURSE: Wey
SITE: Westbrook House
LABORATORY: South Wessex
PRIMARY ANALYST: MP
CODE: 82WY0450
DATE: 8.3.95
AQC ANALYST: GPG
SORT/AQC METHOD: Live/Preserved

RESULTS OF MAIN AUDIT

<table>
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<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>
| 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:

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: South Western
WATER-COURSE: Bristol Avon
SITE: Barton Farm

LABORATORY: North Wessex
PRIMARY ANALYST: MP
CODE: 09 4929

DATE: 1.5.95
AQC ANALYST: GPG
SORT/AQC METHOD: Preserved/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

**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

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: South Western
WATER-COURSE: Huckles Brook
SITE: Hucklesbrook Farm

LABORATORY: South Wessex
PRIMARY ANALYST: MP
CODE: AQC1595
DATE: 18.4.95
AQC ANALYST: GPG
SORT/AQC METHOD: Live/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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</thead>
</table>

**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: South Western
WATER-COURSE: Piddle
SITE: Hyde
LABORATORY: South Wessex
PRIMARY ANALYST: BJJ
CODE: 7904
DATE: 10.5.95
AQC ANALYST: GPG
SORT/AQC METHOD: Live/Preserved

RESULTS OF MAIN AUDIT

<table>
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<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
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<tr>
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<tr>
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<tr>
<td>Planorbidae</td>
<td>Valvata cristata</td>
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<tr>
<td>Additional BMWP taxa found by IFE</td>
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<tr>
<td>Valvataidae</td>
<td>Valvata cristata</td>
<td>7</td>
</tr>
<tr>
<td>SAMPLE</td>
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<td></td>
</tr>
<tr>
<td>BMWP taxa not found by IFE</td>
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<tr>
<td>N/a</td>
<td>(For samples where vial is broken or absent)</td>
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<tr>
<td>Additional BMWP taxa found by IFE</td>
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</tr>
<tr>
<td>Brachycentridae</td>
<td>Brachycentrus subnubilus</td>
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</tbody>
</table>

SUMMARY OF AUDIT

LOSES 1  GAINS 2  OMISSIONS: 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: South Western
WATER-COURSE: Stour
SITE: Lower Farm

LAbORATORY: South Wessex
PRIMARY ANALYST: PRH
CODE: 71ST 7500

DATE: 13.9.95
AQC ANALYST: GPG
SORT/AQC METHOD: Live/Preserved

RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMWP taxa not found by IFE</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Additional BMWP taxa found by IFE</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

SAMPLE

<table>
<thead>
<tr>
<th>BMWP taxa not found by IFE</th>
<th>(For samples where vial is broken or absent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/a</td>
<td></td>
</tr>
<tr>
<td>Additional BMWP taxa found by IFE</td>
<td>Hydroptilidae</td>
</tr>
</tbody>
</table>

SUMMARY OF AUDIT

LOSSES 0  GAINS 1  OMISSIONS: 0  NET EFFECTS:

ON BMWP SCORE  6
ON NO. OF TAXA  1

1. No representative of family in vial
2. Alternative terrestrial specimen in vial
3. Posterior end only in vial
4. Empty shell or case or cast skin in vial
5. Specimen dead at time of sampling
6. Taxon in vial but not recorded
7. Mis-identification
8. Typographical error - wrong box ticked
9. Taxon missed in sorting
10. Unexplained error
11. Taxon added in internal AQC
12. Recorded taxon that was rejected by AQC analyst

Omission (*) = Recorded, not in vial but found by IFE in sample (no net loss or gain)
# External Audit of Biological Samples

**Region:** South Western  
**Water-Course:** Stour  
**Site:** Wyndham Farm  
**Laboratory:** South Wessex  
**Primary Analyst:** MP  
**Code:** 71ST 9250  
**Date:** 20.9.95  
**AQC Analyst:** GPG  
**Sort/AQC Method:** Live/Preserved

## Results of Main Audit

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vial</td>
<td>BMWP taxa not found by IFE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional BMWP taxa found by IFE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Sample</td>
<td>BMWP taxa not found by IFE</td>
<td>(For samples where vial is broken or absent)</td>
</tr>
<tr>
<td></td>
<td>N/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additional BMWP taxa found by IFE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

## 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)
### RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
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</tr>
</thead>
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<tr>
<td><strong>VIAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>None</td>
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</tr>
<tr>
<td>Additional BMWP taxa found by IFE</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>SAMPLE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMWP taxa not found by IFE (For samples where vial is broken or absent)</td>
<td>N/a</td>
<td></td>
</tr>
<tr>
<td>Additional BMWP taxa found by IFE</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

### SUMMARY OF AUDIT

<table>
<thead>
<tr>
<th>LOSSES 0</th>
<th>GAINS 0</th>
<th>OMISSIONS: 0</th>
<th>NET EFFECTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ON BMWP SCORE 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ON NO. OF TAXA 0</td>
</tr>
</tbody>
</table>

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

REGION: South Western  
LABORATORY: South Wessex  
DATE: 30.10.95

WATER-COURSE: Wylye  
PRIMARY  
ANALYST: BJJ  
AQC  
ANALYST: GPG

SITE: Crockerton Green  
CODE: AQC 3395  
SORT/AQC  
METHOD: Live/Preserved

RESULTS OF MAIN AUDIT

<table>
<thead>
<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
<th>Presumed cause of error (see footnotes)</th>
</tr>
</thead>
</table>

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 Specimens 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: South Western
WATER-COURSE: Wylye
SITE: Hensford Marsh

LABORATORY: South Wessex
PRIMARY ANALYST: PRH
CODE: AQC7295

DATE: 30.10.95
AQC ANALYST: GPG
SORT/AQC METHOD: Live/Preserved

RESULTS OF MAIN AUDIT

<table>
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<tr>
<th>Family name</th>
<th>Species name (where appropriate)</th>
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</tr>
</thead>
</table>

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

AQC checker rejected Oligochaeta found by Primary Analyst and called it a Nematode. In fact the specimen was Haplotaxis gordioides

SUMMARY OF AUDIT

LOSSES 0 GAINS 0 OMISSIONS: 0

NET EFFECTS:

ON BMWP SCORE 0
ON NO. OF TAXA 0

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