ENVIRONMENTAL PROTECTION
FINAL DRAFT INTERNAL REPORT

AN AUDIT OF PERFORMANCE IN THE PROCESSING OF MACRO-INVERTEBRATE SAMPLES IN 1992. NRA SOUTH WEST REGION

BY RJM GUNN, JM WINDER, JH BLACKBURN & JF WRIGHT.

FWS/93/009

June 1993

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SUMMARY

This report describes the quality audit of the processing and identification of macro-invertebrate samples from the NRA South West Region's biological river quality monitoring survey undertaken in 1992. The survey was the South West Region's contribution to the 1992 National Biological River Quality Survey. The survey comprised 1483 samples taken from 458 sites.

It was not considered practical to audit the quality of sample collection. Instead, a training video on sample collection was produced in 1990 and shown to all staff involved in sampling.

A small percentage of the samples were re-sorted and identified by IFE, to audit the quality of the sample sorting and the identification of the macro-invertebrates. The auditing procedure was similar to that undertaken in 1990 and 1991, with the exception that an equal number of samples (twenty) were to be audited in each season, and the samples audited were chosen randomly. In 1990 an attempt had been made to audit some samples collected by every NRA biologist. Owing to problems during Spring, only 16 samples were audited in that season, 22 samples being audited in subsequent seasons to make-up the difference.

As in previous years, there were generally more taxa found in the samples by the auditors but not recorded by NRA (termed 'gains') than taxa recorded as present by NRA but not found by the auditors ('losses'). A small number of other errors were identified by the auditors.

The audit results for NRA South West Region in 1992 were mostly good. No comparison with the audit results from other regions was available when this report was written.

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June 1993

ACKNOWLEDGEMENTS
The Institute of Freshwater Ecology undertook the quality audit, and were also the authors of Appendix 1.

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1. INTRODUCTION

This report describes the quality audit for the processing and identification of macro-invertebrate samples from the routine biological river quality monitoring programme undertaken by NRA South West Region in 1992.

1.1 Biological monitoring in the South West Region

Since 1990, NRA South West Region has undertaken a routine biological monitoring programme. It encompasses approximately 960 sites covering more than 4240 km of river and approximately 29 km of canal. Each site is surveyed every other year. The invertebrate surveys form part of the NRA National Biological Survey programme.

In 1992, 458 sites on rivers and 2 sites on canals were surveyed.

1.2 Analytical quality audit

Prior to 1990, there had been no systematic programme of quality assessment for biological work in the South West Region. A independent quality audit of the sample processing and identification has been a feature of the routine invertebrate river quality monitoring programme since its inception in 1990.

The need for quality control was recognised during initial discussions on the 1990 National Biological River Quality Surveys of England and Wales, Scotland, and Northern Ireland. A comprehensive scheme of quality control covering sampling, sorting, identification and analysis was considered, however costs and time did not allow this to be introduced. Instead, a quality audit programme was instigated following advice from the Institute of Freshwater Ecology (IFE).

It was not considered practical to audit the quality of sample collection, which would have been very costly. Instead, considerable effort was made to ensure that all staff taking biological samples received adequate training to ensure that uniform sampling methods were used. To achieve this, a training video on sample collection was produced (National Rivers Authority, 1990) and shown to all involved in sampling.

To audit the quality of the sample sorting and the identification of the macro-invertebrates, a small percentage of the samples were re-sorted and identified by IFE.

In 1992, as in 1990 and 1991, the same quality audit procedure was used by all NRA Regions, Scottish River Purification Boards (RPBs), and the Department of the Environment in Northern Ireland (DoE). Although the IFE's contract was managed centrally by the NRA's National Freshwater Biology Sub-group, each NRA Region financed the work individually.

The quality audit procedure implemented in 1990, 1991 and 1992 was also used for the National NRA Biological Monitoring Surveys and RPB surveys in 1993. It is to be used in future surveys, pending a review of quality control and quality audit procedures [NRA R&D Project A08(92)1]. Internal laboratory quality control programmes were introduced in all NRA Regions that did not already have such a programme (including South West Region) in 1993. This quality control covered sample processing and identification only; like the

external quality audit. Although the procedures varied between Regions, a minimum of 20 samples per season were to be re-processed from each laboratory. It is hoped that a uniform national quality control programme for invertebrate samples will be introduced following the national R&D project. In addition, 30 of the habitat maps produced at each biological sampling site will undergo re-evaluation for quality control in the South West Region in 1993.

1.3 Aims of the biological quality audit

- To provide an independent audit of the quality of the regional biological river quality monitoring survey and the 1992 National Biological River Quality Survey.
- To provide a standard national quality assurance system for biological samples, and to provide information to help with its further development.
- To provide information to help estimate the precision of the 1992 biological survey.
- To provide an indication of the precision of data obtained from the standard NRA sampling and sample processing procedures in general, whether or not the samples are for routine monitoring.
- To improve the quality of biological surveys by identifying those components of sample processing that most frequently cause errors.
- To help determine suitable control limits for future quality control systems.

2. METHODS

2.1 Sampling and sample processing

Samples of macro-invertebrates were collected from each site in three seasons:

Spring	March-May
Summer	June-August
Autumn	September-November.

The samples were collected using the Standard NRA methods for routine invertebrate monitoring surveys, which is compatible with RIVPACS and ensures comparability between samples. In shallow water, the samples were obtained by a three minute kick with a 1 mm mesh pond-net, followed by a one minute manual search. Deeper waters were sampled using a medium naturalist's dredge, also with a 1 mm mesh collecting net. These samples each comprised from three to five dredges, plus a one minute search in the shallows close to the river banks.

The invertebrate samples were preserved in 90% alcohol (industrial methylated spirit) to which 5% glycerol was added, either in the field, or immediately on returning to the laboratory at the end of the day.

There was a national requirement to fix the samples in formaldehyde before preservation in 70% alcohol, to ensure that the samples were in good condition for auditing. The samples from the South West Region were not fixed in formaldehyde owing to the absence of adequate laboratory facilities. Sample preservation was the only major deviation from the standard NRA sample processing procedures. This did not cause too great a problem because of the short interval between sample processing in the Region and auditing by IFE.

The samples were stored prior to sorting and identification. All samples were sorted in the laboratory. Invertebrates were identified to family, except for oligochaetes and water mites which were not identified further. The results were recorded on sample data sheets (see figure 2.1), which were sent to NRA Thames Region for entry onto a database and for analysis.

2.2 Additional sample processing for the quality audit

To assist the quality audit one or two specimens of each invertebrate family were placed in a small vial containing 70% alcohol preservative. When sorting had been completed, the sample and vial were returned to a standard 1.3 litre polythene screw-topped container to which 70% alcohol preservative had been added. The screw-topped jars were placed in standard sized plastic containers (lidded trays) for transport to IFE Wareham, for quality audit and long-term storage. A copy of the completed sample data sheet accompanied each sample, see Figure 2.1.

2.3 The quality audit procedures

Twenty samples collected in each season were re-sorted and identified by IFE (owing to a problem in Spring, only sixteen samples were re-sorted, made up

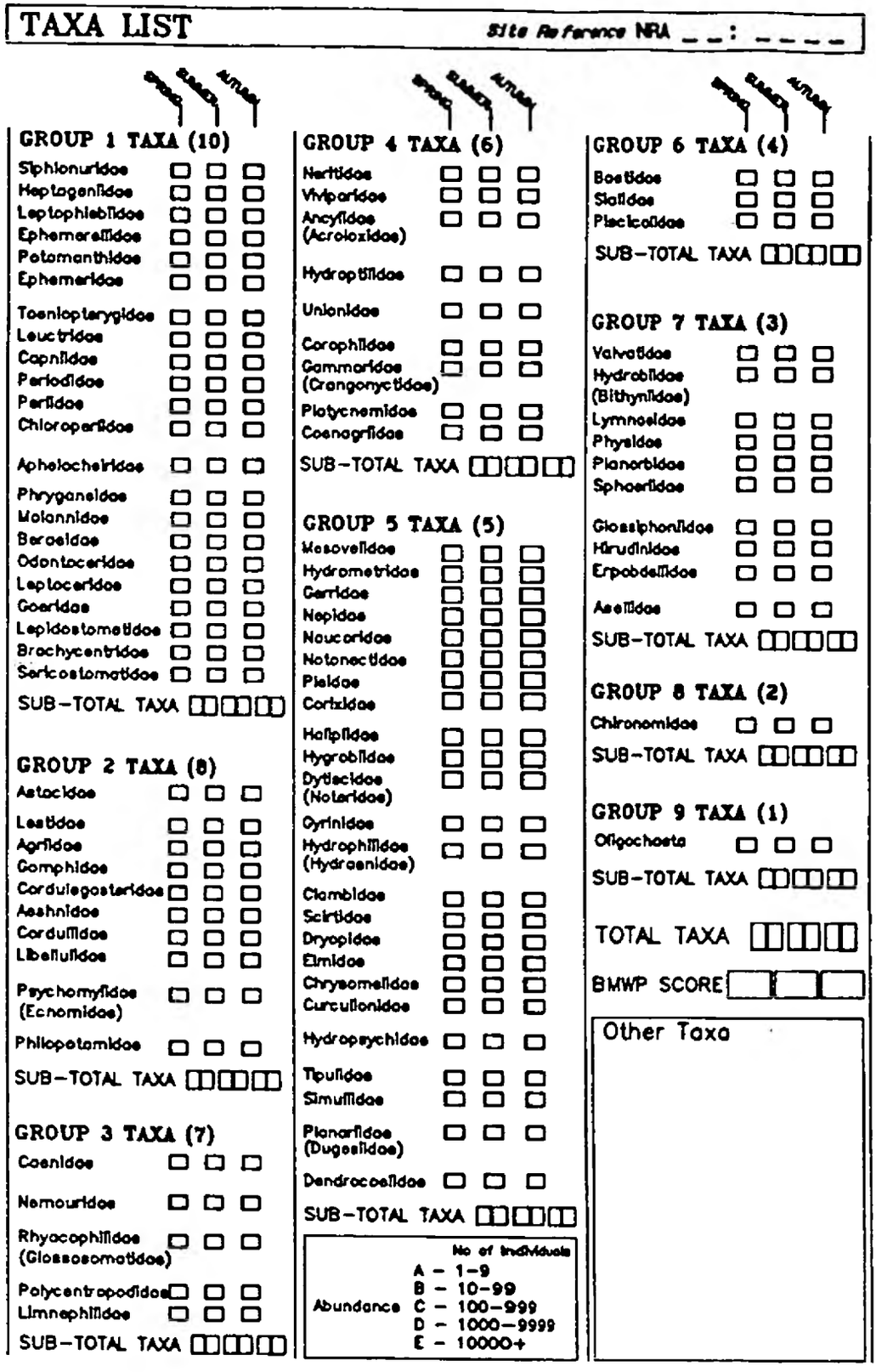

Figure 2.1 Standard sample data form used to record macro-invertebrate sample data

by twenty-two samples being re-sorted in Summer and Autumn). These samples were chosen randomly, using random number tables. This differed from the method adopted in 1990, when an attempt was made to audit at least 4 samples processed by each NRA biologist. It was felt that choosing the samples to be audited randomly would provide a more representative estimate of the error for the survey as a whole. This approach caused the number of samples audited for each biologist, and for each of the area biology laboratories, to vary.

The samples were subject to the following analysis by the auditors:

- the taxonomic families present in the sample (not just those in the vial, see Section 2.2) were recorded;
- the specimens in the vial were identified without reference to the sample data sheet produced by NRA;
- families found in the sample by IFE which did not appear in the NRA's sample data sheet were counted as 'gains';
- families listed on the NRA's sample data sheet but not found in the sample by IFE were counted as 'losses';
- families listed on the NRA's sample data sheet, and found in the sample but not in the vial were termed 'omissions'.

The re-identification of specimens in the vial provided a check on the quality of identification, whilst the comparison of specimens in the vial and in the rest of the sample provided a check on the quality of sorting.

3 RESULTS

The results of the quality audit are reported in detail in Appendix 1. A summary of the results is shown in Table 3.1. There were more 'gains' than 'losses' (see Section 2.3), which was typical of the audit results in all NRA Regions and RPBs in 1990 and 1991. A small number of recording errors were noted by the auditors, where NRA biologists had recognised the presence of a taxon and added an example to the vial, but failed to record its presence on the data sheets. These errors were included with 'gains', but are differentiated from 'gains' where NRA biologists failed to recognise taxa in samples, in Appendix 1.

Table 3.1 Summary of the quality audit results

Year	Total number of samples taken	Number of samples checked	Mean losses	Mean gains	Mean omissions
1990	1490	63	0.48	1.83	0.01
1991	1425	60	0.33	1.08	0.03
1992	1483	60	0.28	1.53	0.12
Spring 92	498	16	0.31	1.19	0.06
Summer 92	493	22	0.18	1.73	0.14
Autumn 92	492	22	0.36	1.59	0.14

The audit results for NRA South West Region in 1992 were less good than the results from 1991. There were more errors in Summer and Autumn than in Spring.

Figure 3.1 shows the variations between consecutive audited samples. Poorer results early in 1990 reflected the inexperience of most staff. The results improved quickly as staff gained competence. The first sample sorted by a new biologist that was audited was invariably poorer than subsequent audited samples, despite the fact that new biologists receive more help from other biologists and their samples are subjected greater scrutiny in the laboratory. The improvement is evident in losses, gains, and omissions.

The taxa involved in errors identified by IFE are listed in Table 3.2. In 1990 some taxa were associated with many errors. In 1992 errors were not associated with particular taxa. Where the same error occured more than once, more than one biologist was usually involved. This suggested that no taxa caused particular problems with identification or recognition in the sorting tray.

The effect of the errors on biotic indices is shown in Table 3.3. In most cases, the errors had little effect on the value of biotic indices, although they were substantial in a few cases. The effect on the NRA Biological Classification would have been even less. The NRA Biological Classification is based on a pooled taxon list from three samples: a taxon accidentally missed in one sample is likely to be picked-up in a subsequent sample, particularly as errors seem to be random (see Table 3.2), and hence the omission-corrected.

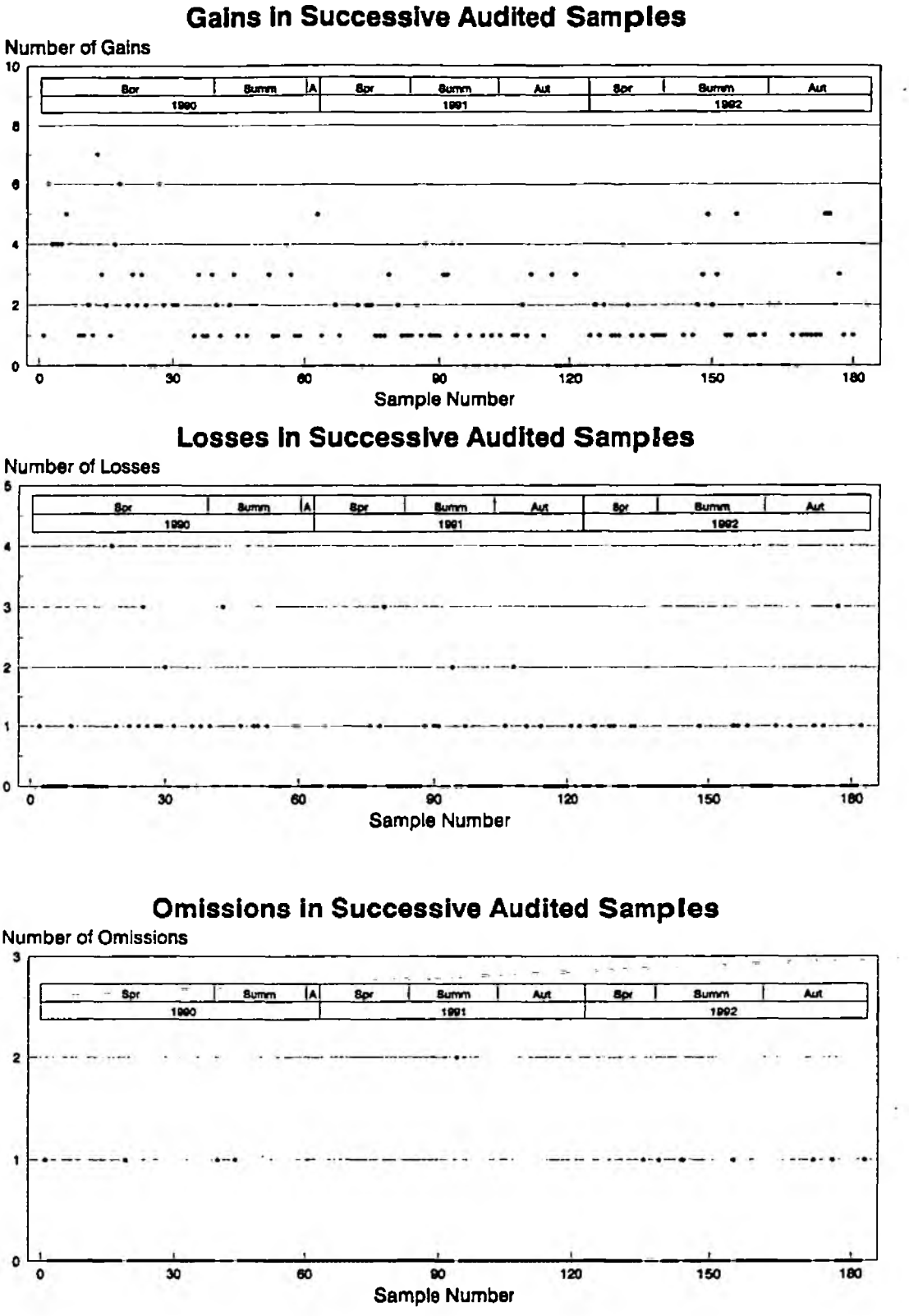

Figure 3.1 Number of 'gains', 'losses' and 'omissions' in successive audited samples. These are in approximately chronological order.

Table 3.2 Errors associated with individual taxa in audited samples, 1992

Spring 1992

FAMILY	SPECIES	TYPE OF ERROR	FREQUENCY	NUMBER OF SORTERS
Heptageniidae		O	1	1
Leptophlebiidae		L	1	1
Ephemerellidae	Ephemerella ignita	G	1	1
Leuctridae	Leuctra geniculata	G	1	1
Chloroperlidae	Chloroperla torrentium	G	1	1
Beraeidae	Beraeodes minutus	G	1	1
Nemouridae	Nemoura sp	G	1	1
Nemouridae	Nemurella picteti	G	1	1
Hydroptilidae	Hydroptila sp	G	1	1
Hydroptilidae	Ithytrichia sp	G	1	1
Gammaridae	Gammarus pulex	G	1	1
Notonectidae	Notonecta glauca	G	1	1
Haliplidae	Haliplus lineatocollis (a)	G	1	1
Hydrophilidae		L	1	1
Tipulidae	Limnophila (Eloeophila)	G	1	1
Simuliidae		L	1	1
Sialidae	Sialis lutaria	G	2	2
Hydrobiidae	Potamopyrgus jenkinsi	G	1	1
Lymnaeidae	Lymnaea palustris/truncata	G	1	1
Physidae	Physa sp (juvenile)	G	1	1
Planorbidae		L	1	1
Erpobdellidae	sp indet	G	1	1
Erpobdellidae	Dina lineata	G	1	1

Summer 1992

FAMILY	SPECIES	TYPE OF ERROR	FREQUENCY	NUMBER OF SORTERS
Leptophlebiidae	Habrophlebia fusca	G	1	1
Leptophlebiidae	Paraleptophlebia sp	G	1	1
Odontoceridae	Odontocerium albicorne	G	3	1
Goeridae	Silo sp (juvenile)	G	1	1
Lepidostomatidae		L	1	1
Lepidostomatidae	Lepidostoma hirtum	G	1	1
Sericostomatidae	Sericostoma personatum	G	1	1
Psychomyiidae		L	1	1
Psychomyiidae	Psychomyia pusilla	G	1	1
Philopotamidae	Philopotamus montanus	G	1	1
Caenidae	Caenis luctuosa/macrura	G	1	1
Caenidae	Caenis rivulorum	G	1	1
Rhyacophilidae	Rhyacophila sp (juvenile)	G	1	1
Polycentropodidae	Polycentropus flavomaculatus	G	1	1
Hydroptilidae		L	1	1
Hydroptilidae	Hydroptila sp	G	3	3
Hydroptilidae	Ithytrichia sp	G	1	1
Gammaridae	Gammarus pulex	G	2	2
Platycnemidae	Platycnemis pennipes	G	1	1
Mesoveliidae		L	1	1
Haliplidae	Brychius elevatus (a)	G	1	1
Dytiscidae	Oreodytes sanmarkii (a)	G	1	1
Hydrophilidae	Helophorus brevipalpis (a)	G	3	3
Hydrophilidae	Hydraena gracilis (a)	G	3	3
Scirtidae	Elodes sp (l)	G	1	1
Elmidae	Elmis aenea (a)	O	1	1
Tipulidae	Dicranota sp	G	1	1
Sialidae	Sialis sp (juvenile)	G	1	1
Sialidae	Sialis fuliginosa	G	1	1
Sialidae	Sialis lutaria	G	2	2
Piscicolidae	Piscicola geometra	G	1	1
Lymnaeidae	Lymnaea peregra	G	1	1
Sphaeriidae	Pisidium sp	O	3	3
Glossiphoniidae	Glossiphonia complanata	G	2	2
Oligochaeta	Tubificidae	G	1	1

Table 3.2 cont.

Autumn 1992

FAMILY	SPECIES	TYPE OF ERROR			FREQUENCY	NUMBER OF SORTERS
Heptageniidae	Ecdyonurus sp	G			1	1
Ephemerellidae	Ephemerella ignita	G			1	1
Ephemeridae	Ephemera danica	G			1	1
Taeniopterygidae	Taeniopteryx nebulosa	G			1	1
Chloroperlidae	Chloroperla torrentium	G			1	1
Odontoceridae			L		1	1
Odontoceridae	Odontocerium albicorne	G			1	1
Leptoceridae	Athripsodes sp	G			1	1
Leptoceridae	Mystacides azurea	G			1	1
Lepidostomatidae			L		1	1
Lepidostomatidae	Lepidostoma hirtum	G			2	2
Sericostomatidae	Sericostoma personatum			O	1	1
Calopterygidae	Calopteryx sp (juvenile)	G			1	1
Philopotamidae	Philopotamus montana	G			1	1
Caenidae	Caenis luctuosa/macrura	G			2	2
Caenidae	Caenis rivulorum	G			1	1
Nemouridae			L		1	1
Polycentropodidae			L		1	1
Rhyacophilidae	Agapetus sp	G			1	1
Rhyacophilidae	Glossosoma sp (p)		L		1	1
Polycentropidae	Plectrocnemia conspersa	G			1	1
Limnephilidae	sp indet (juvenile)	G			1	1
Hydroptilidae	Hydroptila sp (p)	G			1	1
Gammaridae	Crangonyx pseudogracilis	G			1	1
Dytiscidae			L		1	1
Dytiscidae	Oreodytes sanmarkii (a)	G			1	1
Gyrinidae	Orectochilus villosus (l)	G			2	2
Hydrophilidae	Hydraena gracilis (a)	G			1	1
Scirtidae	sp indet (l)	G			1	1
Scirtidae	Elodes (l)	G			1	1
Hydropsychidae	Hydropsyche pellucidula	G			1	1
Tipulidae	Dicranota sp			O	1	1
Tipulidae	Pedecia (Pedecia) sp	G			1	1
Baetidae	Baetis rhodani	G			1	1
Piscicolidae	Piscicola geometra	G			1	1
Hydrobiidae			L		1	1
Hydrobiidae	Potamopyrgus jenkinsi			O	1	1
Lymnaeidae			L		1	1
Lymnaeidae	Lymnaea peregra	G			2	2
Sphaeriidae	Pisidium sp	G			1	1
Glossiphoniidae			L		1	1
Glossiphoniidae	Helobdella stagnalis	G			1	1

Key: L = losses
G = gains
O = omissions

Note: taxa are listed in BMWP order, as in Figure 2.1

Table 3.3 Percentage error in biotic indices recorded by NRA compared to those based on taxa lists corrected according to audit results, for samples audited in 1992. Min and Max gives the range of percentage errors in the indices recorded by NRA. Average = arithmetic mean; SD = sample standard deviation.

	Spring %	Summer %	Autumn %
BMWP-score			
Min	-12.90	-22.00	-19.87
Max	+4.32	+7.03	+1.85
Average	-2.51	-4.78	-6.61
SD	4.29	6.90	6.70
Number of taxa			
Min	-10.00	-25.00	-18.18
Max	+3.23	0.00	0.00
Average	-2.95	-6.05	-5.88
SD	3.66	6.85	6.02
ASPT			
Min	-3.23	-3.91	-5.51
Max	+3.64	+4.00	+3.23
Average	+0.43	+0.74	-1.22
SD	2.03	2.27	2.50

4 DISCUSSION

The results of the biological quality audit for the South West Region in 1992 were reassuring. Kinley & Ellis (1991) drew-up a preliminary upper control limits for losses, based on a Poisson distribution of the results from three Regions with the lowest frequency of errors in 1990, set at three standard distributions above the mean. The value of this preliminary upper control limit was 5.657. Only one audited sample was outside this control limit in 1992.

IFE recommended that no more than 2 hours should be spent in sorting and identifying each sample, see Furse et al. 1986. In 1992 most samples took longer to process than IFE recommend. This was partly explained by the fact that samples collected in this Region were particularly rich, containing much plant material which impeded sorting, and many different invertebrate taxa which slowed both the sorting and identification. The establishment of quality control limits, which are being derived from the results of the quality audits as a part of NRA R&D Project A08(92)01, should help to identify the best balance between accuracy and speed.

No taxon caused frequent errors, so no special taxonomic training is required for family level surveys. Most of the errors were likely to have been caused by a failure to notice a taxon in the sorting tray rather than by misidentification.

In 1993 an internal laboratory quality control scheme is to be introduced to complement the external quality audit. Whereas the external audit is to assess the quality of the survey as a whole, and samples to be audited are chosen randomly from all samples in each season, the internal quality control will be to check the quality of results from individual biologists and laboratories. A similar checking procedure will be adopted to that used for the external audit. Samples to be checked will be chosen randomly from those processed by each biologist. The quality control will be used to ensure that errors by individual biologists and laboratories are recognised quickly and remedial action is taken to ensure that good quality is maintained.

5 REFERENCES

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Appendix 1

Institute of Freshwater Ecology

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

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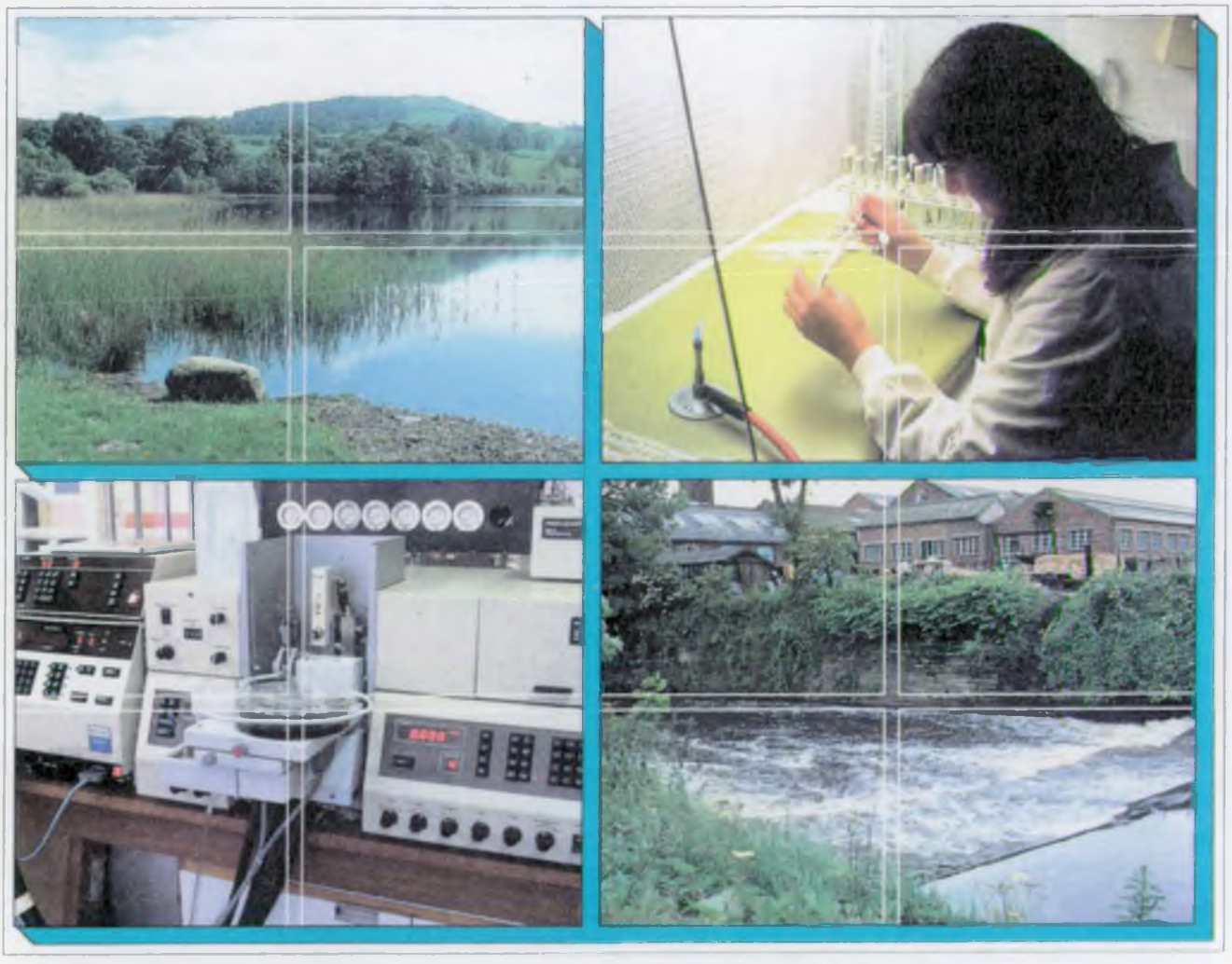
J.H. Blackburn, BSc
J.F. Wright, PhD



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

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Project leader:	R.J.M. Gunn
Report date:	April 1993
Report to:	National Rivers Authority South West Region
IFE Report Ref:	RL/T04071a1/06
TFS Project No:	T04071a1

The Institute of Freshwater Ecology is part of the Terrestrial and Freshwater Sciences Directorate of the Natural Environment Research Council.

1. INTRODUCTION

In 1992 the sampling of aquatic macro-invertebrates for the biological assessment of river quality continued throughout the United Kingdom. This task was undertaken by the National Rivers Authority (NRA) in England and Wales, the River Purification Boards (RPBs) in Scotland and the Industrial Research & Technology Unit (IRTU) in Northern Ireland.

In view of the number of staff involved and the variability of sample processing techniques, it was recognised that an independent quality control exercise was necessary to promote a consistently high level of reliability. The IFE was contracted to undertake an audit of the sample sorting and identification performance of each NRA region, several RPBs and the IRTU. This report presents the results of 60 samples audited for South West Region of the NRA. The IFE was not required to perform any statistical analyses nor interpretation of the results of the audit.

Each organisation employed standard collection procedures, as used in the 1990 River Quality Survey, and the sampling strategy was therefore compatible with RIVPACS (River InVertebrate Prediction And Classification System), which has been developed by the Institute of Freshwater Ecology (IFE).

Samples were sorted by NRA, RPB and IRTU personnel for the families of macro-invertebrates included in the Biological Monitoring Working Party (BMWP) system. Taxa present were recorded on site data sheets. Sample processing and recording techniques varied from region to region.

2. SAMPLE SELECTION

Samples for audit were selected internally by each of the agencies being monitored. The biologists processing these samples had no prior knowledge of the samples to be audited.

The manner of sample selection, which biologists would be monitored and the number of audit samples from each season, were left to the discretion of the agency, within the limits of the total number of samples that IFE was contracted to audit.

3. SAMPLE PROCESSING

The normal protocol for NRA, RPB and IRTU biologists was to sort their samples within the laboratory and to select examples of each scoring taxon within the BMWP system. In most cases, the invertebrates were placed in a vial of preservative (4% formaldehyde solution or 70% industrial alcohol) and the BMWP taxa were listed on a data sheet. The vial of animals and the sorted material were then returned to the sample container and preservative added. Thus, each sample available to IFE for audit should have included:

i) a list of the BMWP families found in the sample
ii) a vial containing representatives from each family
iii) the preserved sample

When these three elements were present, the sequence of operations at IFE was as follows:

a) The remainder of the sample was sorted and the BMWP families listed
b) The families contained within the vial were identified and listed
c) A comparison was made between the NRA listing of families and those identified from the vial by IFE
d) A comparison was made between the NRA listing of families and those found in the sample by IFE
e) "Losses" or "gains" from the NRA listing of families were noted. In the case of "gains", each additional family was identified, where possible, to species level, in order to clarify any specific repetitive errors.

For a number of different reasons, some samples did not include a vial containing representative examples of the families listed on the data sheet. Others arrived with the vial damaged in transit such that the representative examples were no longer separated. For these samples, only operations a), d) and e) above were appropriate.

Several directives were issued to IFE relating to the treatment of BMWP taxa. Terrestrial representatives of BMWP scoring families, animals deemed to have been dead at the time of sampling, cast insect skins, pupal exuviae, empty mollusc shells and posterior ends of "living" specimens were to be excluded from the listing of families present. Chrysomelidae and Curculionidae, which appear in the BMWP list, were also to be excluded for the purposes of the audit. Trichopteran pupae, although not routinely identified by many biologists, were to be included in the listing of families.

4. REPORTING

The results of each sample audit were recorded on a standard report form (Table 1). For audit samples where a vial of animals was included, the comparison between the NRA listing and the taxa found in the vial by IFE was shown in box A of the report form. Discrepancies could be due to carelessness, misidentifications or errors in completing the NRA data sheet. Families not on the NRA listing but found by IFE in the remainder of the sample were entered in box B of the report form under "additional families". When the families listed as "losses" in section A of the report form were compared with the full list of families recorded in the sample by IFE, some apparent losses from the vial were offset by the presence of those families in the remainder of the sample. These taxa were therefore listed in the "losses" box of section A and the "gains" box of section B and were neither a net loss nor a net gain. In these cases, the families were marked with an asterisk in both boxes. Such errors are noted as "omissions" in the tables which summarise the results for each season (Tables 2, 3 and 4).

Species identifications, state of development (eg adult or larval coleopterans) and the presence of a single representative of a family within the remainder of the sample were recorded in the notes section of the report form. Where the NRA data sheet indicated that a family was noted and released at the site, this was recorded in the notes section but not included as a "loss", even though the family was not found in the vial.

For those samples in which the vial of animals was damaged or missing, box A of the report form was not applicable (N/a). Families not on the NRA list but present in the sample were listed in box B under "additional families" as before. Families recorded on the NRA list but not found by IFE were indicated on the left hand side of box B. If the vial of animals was retained by the NRA, entries in this box could include the sole representative of a family which was removed by the NRA, a family seen at the site which escaped or was released (without mention being made on the NRA data sheet), inaccurate identification, the wrong family box being ticked on the NRA data sheet or the family being present in the sample but missed by IFE.

Results of the audits of individual samples are presented in the Appendix.

ACKNOWLEDGEMENTS

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

TABLE 1. The IFE Report form

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION		RIVER	
DATE		SITE	
SORTER		SAMPLE CODE	

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

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

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

NET LOSSES ☐ NET GAINS ☐

NOTES:

TABLE 2. The 16 spring samples audited for South West Region.

River	Site	Sorter	Losses	Gains	Omissions
Latchley Brook	Latchley	TR	0	1	0
Luckett	Old Mill	TR	0	2	0
Tavy	Mid Lopwell Dam	PAB	1	1	0
Withey Brook	u/s Bastreet Intake	ST	0	2	0
Lew	Bloomaford	LB	0	0	0
Ottery	Canworthy Water Bridge	ST	1	1	0
Drimpton Stream	Netherhay	PG	1	1	0
Fowey	Restormel	ST	0	1	0
Henwood Stream	u/s Axe confluence	RG	0	4	0
Vine Water	Feniton	JBC	0	2	0
Lyd	u/s R. Thrushel	TAB	1	1	0
Neet	Hele Bridge	PAB	1	0	0
Smallridge Stream	u/s R. Axe	PG	0	1	1
St Lawrence Stream	A389 Bridge	TB	0	0	0
Camel	Camelford Bridge	PB	0	1	0
Camel	Nanstallon Bridge	TR	0	1	0

TABLE 3. The 22 summer samples audited for South West Region

River	Site	Sorter	Losses	Gains	Omissions
Haye Valley Stream	Haye	KAD	0	1	1
St Mawgan Stream	Whipsiderry	TR	0	0	0
North Badworthy Stream	Barham Bridge	AA	0	0	0
Lamberal Water	Moreton Pound Bridge	ST	0	0	0
Dunstable Brook	u/s Coles Mill Confluence	TR	0	1	0
Claw	Claw Bridge	MD	0	8	1
Claw	Tetcott Bridge	MD	0	1	0
Coombe Raleigh Stream	Longwood	NB	0	2	0
Blackwater	Buddlewall	RA	1	3	0
Neet	Hele Bridge	TAB	0	5	0
Wick Stream	Mill House Nursery	LK	0	2	0
Yarty	Newhaven Bridge	LB	0	3	0
Medland Brook	Waterhouse Bridge	LB	0	0	0
West Okement	Okehampton Hospital	AA	0	1	0
Lew	Holestock Bridge	AA	0	1	0
Bideford Yeo	Hoopers Bridge	RA	1	5	1
Langtree	Servis Farm	RA	1	2	0
Okement	Woodhall Bridge	PG	0	0	0
Tavy	Hill Bridge	PAB	1	1	0
N. Lew Stream Trib.	Ford Coombe	AA	0	1	0
Little Silver Stream	Alswear Road Bridge	PG	0	0	0
Tamar	Crowford Bridge	TR	0	1	0

TABLE 4. The 22 autumn samples audited for South West Region

River	Site	Sorter	Losses	Gains	Omissions
Torridge	Beam Bridge	PG	0	2	0
Axe	Forde Bridge	RA	0	2	0
Umborne Brook	Triffords Farm Bridge	LK	1	2	0
Yealm	Lee Mill Bridge	PAB	0	0	0
Ruthern	Grogley Downs Bridge	KAD	0	0	0
Wagaford Water	Wagaford Bridge	NB	1	1	0
Lew	Lewer Bridge	AA	0	0	0
Bulmoor Stream	Whitford Bridge	AA	0	1	0
Synderford	Beere Farm	LK	0	1	0
Fair Oak	Upottery	AA	0	1	0
Gissage	u/s Otter confluence	PG	1	1	1
Cardinham Water	Glynmill	PAB	0	1	0
Axe	A358 Bridge, Weycroft	AA	1	5	0
Woolacombe Stream	Woolacombe Bridge	AA	0	5	0
Tory Brook	Station Road Plympton	MD	0	2	1
Hollocombe Water	Woodroberts	RA	3	3	0
West Okement	Okehampton Hospital	AA	0	1	0
Blanchdown Stream	u/s R. Tamar	TAB	0	0	0
Camel	Tresarret Bridge	TAB	0	1	0
Kensey	Badgall Bridge	TR	0	0	0
Smallhanger Brook	u/s Tory Brook	KAD	1	4	0
Carey	Boldford Bridge	MD	0	2	1

APPENDIX

Results of individual sample audits

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Latchley Brook
DATE	9.3.92	SITE	Latchley
SORTER	TR	SAMPLE CODE	NRA06 1217

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

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

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

NET LOSSES [0] NET GAINS [1]

NOTES:

1 Chloroperla torrentium 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Luckett
DATE	10.3.92	SITE	Old Mill
SORTER	TR	SAMPLE CODE	NRA06 1292

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

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

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

NET LOSSES [0] NET GAINS [2]

NOTES:

1 Physa sp. (juvenile) 1 only
2 Potamopyrgus jenkinsi 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Tavy
DATE	5.3.92	SITE	Mid Lopwell Dam
SORTER	PAB	SAMPLE CODE	NRA06 1283

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

A	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
VIAL Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Simuliidae	2 Notonectidae

B	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
SAMPLE Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES [1] NET GAINS [1]

NOTES:

2 Notonecta glauca

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Withey Brook
DATE	16.3.92	SITE	U/s Bastreet Intake
SORTER	ST	SAMPLE CODE	NRA06 1271

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

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

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

NET LOSSES [0] NET GAINS [2]

NOTES:

1 Sialis lutaria 1 only
2 Hydroptila sp.

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Lew
DATE	18.3.92	SITE	Bloomaford
SORTER	LB	SAMPLE CODE	NRA06 2950

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Ottery
DATE	20.3.92	SITE	Canworthy Water Bridge
SORTER	ST	SAMPLE CODE	NRA06 1255

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

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

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

NET LOSSES [1] NET GAINS [1]

NOTES:

2 Dina lineata 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Drimpton Stream
DATE	7.4.92	SITE	Netherhay
SORTER	PG	SAMPLE CODE	NRA06 0217

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

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

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

NET LOSSES [1] NET GAINS [1]

NOTES:

2 Leuctra geniculata 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Fowey
DATE	13.5.91	SITE	Restormel
SORTER	ST	SAMPLE CODE	NRA06 1516

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Gammarus pulex 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Henwood Stream
DATE	7.4.92	SITE	u/s Axe confluence
SORTER	RG	SAMPLE CODE	NRA06 0240

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	1 Ephemerellidae 2 Nemouridae 3 Haliplidae 4 Beraeidae

NET LOSSES 0 NET GAINS 4

NOTES:

1 Ephemerella ignita
2 Nemoura sp. 1 only
3 Haliplus lineatocollis (adult) 1 only
4 Beraeodes minutus 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Vine Water
DATE	9.4.92	SITE	Feniton
SORTER	JBC	SAMPLE CODE	NRA06 0420

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

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

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

NET LOSSES [0] NET GAINS [2]

NOTES:

1 Nemurella picteti
2 Sialis lutaria 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Lyd
DATE	29.4.92	SITE	u/s R.Thrushel
SORTER	TAB	SAMPLE CODE	NRA06 1295

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

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

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

NET LOSSES [1] NET GAINS [1]

NOTES:

2 Lymnaea palustris/truncatula 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Neet
DATE	25.3.92	SITE	Hele Bridge
SORTER	PAB	SAMPLE CODE	NRA06 2706

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES [1] NET GAINS [0]

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Smallridge Stream
DATE	7.4.92	SITE	u/s R.Axe
SORTER	PG	SAMPLE CODE	NRA06 0238

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

2 Indet erpobdellid 1 only
3 Rhithrogena semicolorata/germanica, Ecdyonurus sp.

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	St Lawrence Stream
DATE	21.4.92	SITE	A389 Bridge
SORTER	TB	SAMPLE CODE	NRA06 2515

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Camel
DATE	21.4.92	SITE	Camelford Bridge
SORTER	PB	SAMPLE CODE	NRA06 2510

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Ithytrichia sp. 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Camel
DATE	23.4.92	SITE	Nanstallon Bridge
SORTER	TR	SAMPLE CODE	NRA06 2511

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Limnophila (Eloeophila) sp. 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Haye Valley Stream
DATE	19.6.92	SITE	Haye
SORTER	KAD	SAMPLE CODE	NRA06 12139

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

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

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

NET LOSSES [0] NET GAINS [1]

NOTES:

2 Pisidium sp. 1 only
3 Elmis aenea (adult) 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	St Mawgan Stream
DATE	4.8.92	SITE	Whipsiderry
SORTER	TR	SAMPLE CODE	NRA06 2526

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	North Badworthy Stream
DATE	5.6.92	SITE	Barham Bridge
SORTER	AA	SAMPLE CODE	NRA06 3029

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Lamberal Water
DATE	8.6.92	SITE	Moreton Pound Bridge
SORTER	ST	SAMPLE CODE	NRA06 1250

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Dunstable Brook
DATE	10.6.92	SITE	u/s Coles Mill Confluence
SORTER	TR	SAMPLE CODE	NRA06 12110

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Sialis lutaria 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Claw
DATE	10.6.92	SITE	Claw Bridge
SORTER	MD	SAMPLE CODE	NRA06 12107

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	2 Sphaeriidae* 3 Glossiphoniidae 4 Haliplidae 5 Dytiscidae 6 Hydrophilidae 7 Sialidae 8 Rhyacophilidae 9 Sericostomatidae 10 Tipulidae

NET LOSSES 0 NET GAINS 8

NOTES:

2 Pisidium sp. 1 only
3 Glossiphonia complanata 1 only
4 Brychius elevatus (adult) 1 only
5 Oreodytes sanmarkii (adult) 1 only
6 Hydraena gracilis (adults)
7 Sialis fuliginosa 1 only
8 Rhyacophila sp. (juvenile) 1 only
9 Sericostoma personatum
10 Dicranota sp.

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Claw
DATE	11.6.92	SITE	Tetcott Bridge
SORTER	MD	SAMPLE CODE	NRA06 1242

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Gammarus pulex 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Coombe Raleigh Stream 4B
DATE	17.7.92	SITE	Longwood
SORTER	NB	SAMPLE CODE	NRA06 0418

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

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

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

NET LOSSES 0 NET GAINS 2

NOTES:

1 Sialis lutaria
2 Caenis luctuosa/macrura 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Blackwater
DATE	9.7.92	SITE	Buddlewall
SORTER	RA	SAMPLE CODE	NRA06 0222

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Mesoveliidae	2 Odontoceridae

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

NET LOSSES [1] NET GAINS [3]

NOTES:

1 Veliid nymphs in vial
2 Odontocerum albicorne
3 Tubificidae
4 Polycentropus flavomaculatus 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Neet
DATE	19.6.92	SITE	Hele Bridge
SORTER	TAB	SAMPLE CODE	NRA06 2706

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	1 Lymnaeidae 2 Glossiphoniidae 3 Hydrophilidae 4 Sialidae 5 Hydroptilidae

NET LOSSES [0] NET GAINS [5]

NOTES:

1 Lymnaea peregra
2 Glossiphonia complanata 1 only
3 Hydraena gracilis, Helophorus brevipalpis (adults)
4 Sialis sp. (juvenile) 1 only
5 Hydroptila sp. 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Wick Stream
DATE	14.7.92	SITE	Mill House Nursery
SORTER	LK	SAMPLE CODE	NRA06 0407

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

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

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

NET LOSSES 0 NET GAINS 2

NOTES:

1 Caenis rivulorum 1 only
2 Hydroptila sp., Ithytrichia sp.

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Yarty
DATE	6.7.92	SITE	Newhaven Bridge
SORTER	LMB	SAMPLE CODE	NRA06 0225

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	1 Leptophlebiidae 2 Hydroptilidae 3 Goeridae

NET LOSSES 0 NET GAINS 3

NOTES:

1 Paraleptophlebia sp. 1 only
2 Hydroptila sp. 1 only
3 Silo sp. (juvenile) 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Medland Brook
DATE	25.6.92	SITE	Waterhouse Bridge
SORTER	LMB	SAMPLE CODE	NRA06 2954

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES [0] NET GAINS [0]

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	West Okement
DATE	29.6.92	SITE	Okehampton Hospital
SORTER	AA	SAMPLE CODE	NRA06 2932

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Helophorus brevipalpis (adults)

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Lew
DATE	23.6.92	SITE	Holestock Bridge
SORTER	AA	SAMPLE CODE	NRA06 2923

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

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

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

NET LOSSES [0] NET GAINS [1]

NOTES:

1 Gammarus pulex

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Bideford Yeo
DATE	16.6.92	SITE	Hoopers Bridge
SORTER	RA	SAMPLE CODE	NRA06 2902

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Sphaeriidae* 2 Hydroptilidae	3 Odontoceridae

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	4 Sphaeriidae* 5 Piscicolidae 6 Leptophlebiidae 7 Hydrophilidae 8 Lepidostomatidae

NET LOSSES [1] NET GAINS [5]

NOTES:

3 Odontocerum albicorne
4 Pisidium sp.
5 Piscicola geometra 1 only
6 Habrophlebia fusca
7 Hydraena gracilis, Helophorus brevipalpis (adults)
8 Lepidostoma hirtum 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Langtree
DATE	12.6.92	SITE	Servis Farm
SORTER	RA	SAMPLE CODE	NRA06 2936

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Psychomyiidae	2 Philopotamidae

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

NET LOSSES 1 NET GAINS 2

NOTES:

2 Philopotamus montanus
3 Odontocerum albicorne 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Okement
DATE	25.6.92	SITE	Woodhall Bridge
SORTER	PG	SAMPLE CODE	NRA06 2927

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Tavy
DATE	18.6.92	SITE	Hill Bridge
SORTER	PAB	SAMPLE CODE	NRA06 1203

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Lepidostomatidae	2 Psychomyiidae

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES [1] NET GAINS [1]

NOTES:

1 Decomposed head of Lepidostomatid + 2 empty cases in vial
2 Psychomyia pusilla

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	N.Lew Stream Tributary
DATE	23.6.92	SITE	Ford Coombe
SORTER	AA	SAMPLE CODE	NRA06 2958

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

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

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

NET LOSSES [0] NET GAINS [1]

NOTES:

1 Elodes sp. (larva) 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Little Silver Stream
DATE	9.6.92	SITE	Alswear Road Bridge
SORTER	PG	SAMPLE CODE	NRA06 3025

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Tamar
DATE	10.6.92	SITE	Crowford Bridge
SORTER	TJR	SAMPLE CODE	NRA06 12115

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Platycnemis pennipes 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Torridge
DATE	21.9.92	SITE	Beam Bridge
SORTER	PG	SAMPLE CODE	NRA06 2940

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

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

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

NET LOSSES 0 NET GAINS 2

NOTES:

1 Crangonyx pseudogracilis 1 only
2 Caenis luctuosa/macrura 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Axe
DATE	6.10.92	SITE	Forde Bridge
SORTER	RA	SAMPLE CODE	NRA06 0233

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

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

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

NET LOSSES 0 NET GAINS 2

NOTES:

1 Lymnaea peregra 1 only
2 Ephemerella ignita 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Umborne Brook
DATE	8.10.92	SITE	Triffords Farm Bridge
SORTER	LK	SAMPLE CODE	NRA06 0205

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Lepidostomatidae	2 Limnephilidae

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

NET LOSSES [1] NET GAINS [2]

NOTES:

2 Indet Limnephilid (juvenile) 1 only
3 Helobdella stagnalis 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Yealm
DATE	1.9.92	SITE	Lee Mill Bridge
SORTER	PAB	SAMPLE CODE	NRA06 1010

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES [0] NET GAINS [0]

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Ruthern
DATE	8.10.92	SITE	Grogley Downs Bridge
SORTER	KAD	SAMPLE CODE	NRA06 2512

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES [0] NET GAINS [0]

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Wagaford Water
DATE	28.9.92	SITE	Wagaford Bridge
SORTER	NB	SAMPLE CODE	NRA06 2956

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

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

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

NET LOSSES [1] NET GAINS [1]

NOTES:

1 Terrestrial snail (shell missing) in vial
2 Chloroperla torrentium 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Lew
DATE	5.10.92	SITE	Lewer Bridge
SORTER	AA	SAMPLE CODE	NRA06 2952

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Bulmoor Stream
DATE	6.10.92	SITE	Whitford Bridge
SORTER	AA	SAMPLE CODE	NRA06 0231

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Hydropsyche pellucidula 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Synderford
DATE	6.10.92	SITE	Beere Farm
SORTER	LK	SAMPLE CODE	NRA06 0218

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Caenis rivulorum 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Fair Oak
DATE	8.10.92	SITE	Upottery
SORTER	AA	SAMPLE CODE	NRA06 0416

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Oreodytes sanmarkii (adult) 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Gissage
DATE	12.10.92	SITE	u/s Otter confluence
SORTER	PG	SAMPLE CODE	NRA06 0408

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Glossiphoniidae 2 Sericostomatidae*	None

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

NET LOSSES [1] NET GAINS [1]

NOTES:

3 Odontocerum albicorne 1 only
4 Sericostoma personatum

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Cardinham Water
DATE	2.10.92	SITE	Glynmill
SORTER	PAB	SAMPLE CODE	NRA06 1506

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

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

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

NET LOSSES [0] NET GAINS [1]

NOTES:

1 Pisidium sp.

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Axe
DATE	1.10.92	SITE	A358 Bridge, Weycroft
SORTER	AA	SAMPLE CODE	NRA06 0215

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Nemouridae	2 Taeniopterygidae

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

NET LOSSES [1] NET GAINS [5]

NOTES:

2 Taeniopteryx nebulosa
3 Piscicola geometra 1 only
4 Caenis luctuosa/macrura 1 only
5 Calopteryx sp. (juveniles)
6 Hydroptila sp. (pupa) 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Woolacombe Stream
DATE	2.9.92	SITE	d/s Woolacombe Bridge
SORTER	AA	SAMPLE CODE	NRA06 3040

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	1 Lymnaeidae 2 Ephemeridae 3 Gyrinidae 4 Scirtidae 5 Polycentropodidae

NET LOSSES [0] NET GAINS [5]

NOTES:

1 Lymnaea peregra 1 only
2 Ephemera danica 1 only
3 Orectochilus villosus (larvae)
4 Indet Scirtid (larva) 1 only
5 Plectrocnemia conspersa 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Tory Brook
DATE	2.9.92	SITE	Station Road, Plympton
SORTER	MD	SAMPLE CODE	NRA06 1102

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

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

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

NET LOSSES [0] NET GAINS [2]

NOTES:

1,2 Empty shell in vial, Potamopyrgus jenkinsi in sample.
3 Baetis rhodani 1 only
4 Pedicia (Pedicia) sp. 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Hollocombe Water
DATE	7.9.92	SITE	Woodroberts
SORTER	RA	SAMPLE CODE	NRA06 3046

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Dytiscidae 2 Polycentropodidae 3 Odontoceridae	4 Gyrinidae 5 Philopotamidae

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	6 Rhyacophilidae

NET LOSSES 3 NET GAINS 3

NOTES:

4 Orectochilus villosus (larvae)
5 Philopotamus montanus
6 Glossosoma sp. (pupae)

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	West Okement
DATE	2.10.92	SITE	Okehampton Hospital
SORTER	AA	SAMPLE CODE	NRA06 2932

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Athripsodes sp. 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Blanchdown Stream
DATE	9.10.92	SITE	u/s R.Tamar
SORTER	TAB	SAMPLE CODE	NRA06 1293

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Camel
DATE	24.9.92	SITE	Tresarret Bridge
SORTER	TAB	SAMPLE CODE	NRA06 2542

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

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

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

NET LOSSES 0 NET GAINS 1

NOTES:

1 Sericostoma personatum

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Kensey
DATE	17.9.92	SITE	Badgall Bridge
SORTER	TJR	SAMPLE CODE	NRA06 1260

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	None

NET LOSSES 0 NET GAINS 0

NOTES:

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Smallhanger Brook
DATE	2.9.92	SITE	u/s Tory Brook
SORTER	KAD	SAMPLE CODE	NRA06 1117

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

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

B	SAMPLE	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in SAMPLE by IFE	(This box only completed when no vial is supplied with sample)	2 Heptageniidae 3 Hydrophilidae 4 Scirtidae 5 Leptoceridae

NET LOSSES 1 NET GAINS 4

NOTES:

2 Ecdyonurus sp. 1 only
3 Hydraena gracilis (adults)
4 Elodes sp. (larva) 1 only
5 Mystacides azurea 1 only

1992 RIVER QUALITY SURVEY AQC - BIOLOGICAL SAMPLES

REGION	South West	RIVER	Carey
DATE	11.9.92	SITE	Boldford Bridge
SORTER	MD	SAMPLE CODE	NRA06 12103

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

A	VIAL	BMWP FAMILIES NOT FOUND BY IFE	ADDITIONAL FAMILIES FOUND BY IFE
	Differences between: i) BMWP families listed on sample data sheet and ii) BMWP families found in VIAL by IFE	1 Tipulidae*	2 Lepidostomatidae

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

NET LOSSES 0 NET GAINS 2

NOTES:

2 Lepidostoma hirtum
3 Agapetus sp.
4 Dicranota sp.