

Contract Report (non-refereed)

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# **COUNTRYSIDE SURVEY 2000**

## **MODULE 2**

### **SURVEY OF FRESHWATER**

#### **HABITATS**

**R&D Progress Report E1/038/8  
for the Period 1st October 1999 to  
31st December 1999**

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# 1 TECHNICAL PROGRESS

This progress report covers the three months of the work programme from 1st October, 1999 to 31<sup>st</sup> December, 1999

## 1.1 Objectives

The general objectives of Countryside Survey 2000 (CS2000) are:

- to record the stock of features associated with the wider countryside, including information on land cover, landscape features, terrestrial and freshwater habitats and species, in 1998
- to determine change by comparison with earlier surveys
- to maintain and refine the base-line set down in 1990 to ensure that the survey data continue to be relevant to current policy needs
- to develop the data-base of countryside information following the 1990 survey so that a range of data outputs, relevant to the reporting frameworks used by central government and its agencies and the needs of the research and academic community, can be derived, with the first results available in 2000

The specific objectives of Module 2, “Survey of Freshwater Habitats”, are as follows:

- to provide information on the status and distribution of the macro-invertebrate fauna of streams and rivers in Great Britain
- to determine and evaluate change by comparison with 1990 survey data relating to the same sites
- to determine habitat structure and degree of modification of river corridors
- to undertake a limited diagnostic survey of the chemical character of the watercourses to help interpret the results of macro-invertebrate and river habitat surveys
- to investigate the relationship between the habitat quality and modification of river corridors, the ecological quality of the watercourse and the condition of the surrounding countryside
- to derive indicators relating to status and change in watercourse and river habitat quality

## **1.2 Work Programme and Timetable for the R&D Project**

The module consists of three components:

- (i) Macro-invertebrate surveys
- (ii) River Habitat Surveys
- (iii) Diagnostic chemical sampling

Details of the identification of the sampling sites and organisation of the sampling programme, including the additional sampling of diatoms, chironomid pupal exuviae and macrophytes, were provided in the first Progress Report (Furse and Dawson 1998)

## **2 INTERIM RESULTS**

### **2.1 Sampling Progress**

Sampling was completed and reported upon in a previous Progress Report (Furse *et al.* 1999).

### **2.2 Sorting Progress**

During the present reporting period 49 macro-invertebrate samples were sorted, including 3 replicate samples. This completed the sorting process.

In total 446 samples were sorted from 405 1km squares. The remaining 41 samples were replicates, collected in order to determine the variation associated with macro-invertebrate sampling. The 41 replicates were taken from 41 separate squares. Replicate sampling thus occurred at 10.1% of the squares sampled for macro-invertebrates.

### **2.3 Identification Progress**

In the present reporting period 112 macro-invertebrate samples have been identified, including 6 replicate sample.

A total of 316 macro-invertebrate samples (70.9%) have now been identified. Of these, 293 were main samples (72.3%) and 23 were replicates (56.1%).

### **2.4 Chemical Analyses**

All water samples collected during the survey were analysed for pH, conductivity and alkalinity during 1998.

## 2.5 Data Logging

**Chemical data:** All chemical data have been imported into the Countryside Survey 2000 relational database and are ready for validation.

**Biological data:** Macro-invertebrate identifications are first held on paper. Initial importation of these data into the relational database began in late 1998. Data entry recommenced in December 1999. Approximately 20% of the samples had been entered in the database by the end of the reporting period.

No validation of biological data has yet been undertaken.

**RIVPACS environmental data:** All RIVPACS environmental data have now been entered into the relational database. Time invariant data have all been validated (see next paragraph) but time variant data on stream dimensions and substratum composition are still awaiting validation.

**RHS data:** All RHS data collected during Countryside Survey 2000 (CS2000), including audit surveys, were transferred to the relational database during the reporting period. Altitude, discharge, distance from source and slope values have been cross-validated against the RIVPACS environmental data and any discrepancies between the two sets of data have been resolved.

**Digitization of RHS maps:** Funding having been identified, this process, will now begin in January 2000.

## 2.6 Meetings

On 30<sup>th</sup> November, 1999, the Institute of Freshwater Ecology (Mike Furse) and the Institute of Terrestrial Ecology (Mike Hornung, Roy Haines-Young (also Nottingham University) and Colin Barr) met with representatives of the Department of the Environment, Transport and the Regions (DETR) (Andrew Stott and Alison Dorling) to discuss issues relating to the reporting of CS2000. Particular emphasis was placed on provision of data for the summary report, which is due for publication in November 2000.

It was agreed that CS2000 module leaders would provide the drafting sub-group, responsible for compiling the summary report, with their major tables of results by the end of April 2000. These would be accompanied by one page commentaries setting out the most important findings of each module and the resultant needs for further investigation.

It was further agreed that Module leaders would attempt to have some of the major results available for consideration by the drafting sub-group and DETR's Advisory Committee in early March. DETR also felt it desirable that an Environment Agency Project Board Meeting be convened in mid-February 2000, in order to discuss the output of data from Module 2 (Survey of Freshwater Havbitats). The meeting could also provide an opportunity to discuss further research on the diatom and chironomid pupal exuviae samples collected, during CS2000, at all suitable macro-invertebrate sampling sites.

DETR agreed that Alison Dorling would contact the Agency Project Manager (Bob Huggins) in order to discuss the possibility of arranging this meeting and, if agreed by the Agency, to request the presence, at it, of Mike Hornung, Roy Haines-Young and a representative of DETR's Water Directorate.

### **3 PLANS FOR THE NEXT REPORTING PERIOD**

The next reporting period is from 1st January 2000 to 31st March 1999.

During this period the identification, data-logging and validation of macro-invertebrate samples will be completed.

The digitisation of field maps for the recording of the proportional representation of land cover types and Broad Habitat classes within 10m zones on each bank of each River Habitat Survey section within a CS2000 Survey square will also be completed during the next reporting period. Funding is currently being made available for this exercise by the Institute of Terrestrial Ecology.

The following meetings are planned for the next reporting period and will be attended by a representative of the IFE:

March 1st	CEH module leaders meeting with the Drafting Sub-Committee	London
March 2nd	DETR Advisory Group meeting	London
To be arranged	Environment Agency Project Board Meeting	

In addition to the Environment Agency Project Board, the Agency is also represented on the Advisory Committee to the DETR.

It is planned to have provisional versions of the following information available for discussion at the above-listed meetings:

- Biotic index (Biological Monitoring Working Party score system) values for each macro-invertebrate sampling site
- Species richness measures for each macro-invertebrate sampling site
- Comparison of the 1998 values of the above-listed metrics with equivalent values for the same sites in 1990
- Habitat Quality Index values for each RHS sampling section
- Habitat Modification Index values for each RHS sampling section

Results will be summarised according to the six current Environmental Zones

## **4 FACTORS WHICH MAY AFFECT THE ATTAINMENT OF ANY TARGETS OR TIMESCALES**

It is expected that all targets for the next reporting period will be met.

## **5 FINANCE**

A financial summary for the reporting period may be obtained from the IFE Finance Office approximately two months after the end of the period in question.

## **6 REASONS FOR ANY LIKELY UNDER OR OVERSPEND OF BUDGET**

The need to employ additional staff, in order to counteract the slow progress with sample processing and identification, has resulted in higher costs to IFE than previously budgeted for.

## **7 OTHER MATTERS**

IFE continues to re-constitute and retain 10% of all sorted and identified macro-invertebrate samples for potential audit. Samples are selected at random immediately after sorting. All other samples have been disposed of.

## **8 REFERENCES**

Furse, M T & Dawson, F H (1998) Countryside Survey 2000. Module 2: Survey of Freshwater Habitats. R&D Progress Report E1/038/2 for the period 1st April 1998 to 30th June 1998. A Progress Report to the Environment Agency, 5pp.

Furse, M T, Dawson, F H, Winder, J M, Davy-Bowker, J, Blackburn, J H, Scarlett, P M, Small, R S, Fairfax, C M, Wiggers, R & Vowles, K E (1999) Countryside Survey 2000. Module 2: Survey of Freshwater Habitats. R&D Progress Report E1/038/5 for the period 1st February 1999 to 31st March, 1999, 7pp.

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