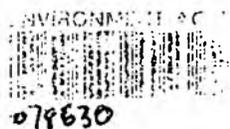


Interim Report

R&D Project 346

Physical Environment for
River Invertebrate Communities

University of Leicester
August 1993



1. CONTEXT

This document describes progress of NRA R&D Contract 346 since the previous Interim Report. The project is due to finish at the end of March 1993; though as recognized in an earlier report, the NRA adopted flexibility in the changeover from this Project's precursor which we should recognise in the likely revision of final documents.

Fieldwork is currently in progress and this document has therefore been produced as briefly as possible.

2. TARGETS AND ACHIEVEMENTS

2.1 Achievements

The past nine months have been spent on five aspects of the work approximately equally.

- a) Updating the functional habitat literature database, so that the results of the project will be analysed and discussed in the context of the most recent research from Europe and North America.
- b) Completing the reports of Project 291. Much of the literature review at that time was 'distilled' into Project Record 291/4/W and R&D Note 135 because of its importance in the revision of RCS methodology. Additional work was required because of changed requirements for what was originally called the 'Handbook'.
- c) Reviewing approaches to multivariate analysis of species distribution data. Completing the computerisation of data-handling and analysis routines so that spreadsheets containing raw data can smoothly pass into multivariate analyses.
- d) Establishing access to the required river stretches.
- e) Commencement of the major sampling effort on the target rivers.

Two additional components were added to the work.

- a) Rehabilitation of the riffle system on a reach of the middle river Welland at Haringworth was advised upon. A two-year M.Sc. project was independently established to investigate the colonization of the riffles; and the geomorphological / ecological effect of the riffles upon functional habitat distribution at the site.
- b) A paper was prepared and presented jointly with the NRA, to discuss habitat enhancement on a reach of the Harper's Brook in Anglian Region.

2.2 Targets from 1992

Several targets were specified in the 1992 Interim Report and have been achieved, deferred or abandoned as follows:

- a) Corridor Surveys in parallel with functional habitat survey. This has not been necessary with the adoption of a standard RCS methodology by the NRA. We can adequately compare RCS specifications with the range of in-stream habitats as a desk study in due course, although any existing RCS for the study reaches will be examined. The published method will inevitably be updated in response to feedback from Regions and their contractors, in terms of cost and locally-important issues. We should aim to provide an assessment with regard to the habitats of aquatic invertebrates which can be considered at that stage.

- b) Concurrent sampling for use of RIVPACS in water quality assessment. This has not been established in advance because of climatic uncertainties over precisely when each river could be sampled. The most nearly-corresponding samples will be requested in late 1993 for comparison with the data from project fieldwork.
- c) Winter habitat functional analysis and seasonal functional analyses of habitats on one river. This has not yet started and may not be possible within the remaining programme. However, the work planned on the Welland at Haringworth together with additional Ph.D. work on riffle restoration on the Harper's Brook can be modified to achieve these ends.
- d) 'Standard Methods' handbook. This was deferred until receipt of Steering Group comments upon the outputs of Project 291, which incorporated a similar concept.

2.3 Work towards project completion

There are several aspects of the work to which the remaining time will be allocated:

- a) Setting an end to the literature reviews. Gathering of information will cease at the end of October so that the review can be completed without further modification. Any essential new information will be presented as a footnote.
- b) Completion of habitat fieldwork. Some of the fieldwork is outstanding due to summer spates and vehicle breakdown. We expect this to be completed during September but if not, the Project Leader will be advised.
- c) Identification of invertebrates from 1993 fieldwork. This will be carried out along agreed lines, with time-consuming taxa (eg Chironomidae, Oligochaeta) left until last. The generic identification of chironomids should be considered separately if necessary due to their particular diversity and habitat specificity.
- d) We need to make obtain results of water quality monitoring on the study rivers so that the potential influence of habitat richness can be assessed. We also need to remain aware of current developments in RCS and conservation classification so that proposals for instream habitats are relevant.
- e) Details of the timescale and progress of individual aspects of the work will be discussed with the Project Leader on completion of fieldwork. The most pressing final output is the Project Record. We recommend that this be reviewed as early as possible – in draft form if necessary – so that work towards the R&D Note and other permanent documents is always relevant to their final form.

3. PROPOSED OUTLINE OF PROJECT RECORD

An outline is proposed for the Project Record, so that it can be compared with expectations as soon as possible. The bullet points indicate general content and do not represent sub-headings. It may be sensible then to produce two separate R&D Notes covering the review section and the research / application.

TITLE PAGE, CONTENTS, LISTS ETC : AS SPECIFIED BY R&D NOTE 1

EXECUTIVE SUMMARY

- Brief background
- Description of contents
- Conclusions and recommendations (reproduced / summarized from the text)

1. BACKGROUND

- Context ... previous reports / other NRA R&D
- Formal introduction (ie broad review and purpose)
- Objectives, overall and specific

REVIEW SECTION

2. HABITAT INFORMATION

- Definitions
- Identification of habitats
- Value of habitats
- Habitat management

3. SPECIES INFORMATION

- Inventory of habitat requirements
- Methods of summary (eg systematics, communities, feeding guilds)
- Assessment of coverage

4. CLASSIFICATION METHODS

- Objectives of habitat classification
- Comparison of methods
- Availability of software

RESEARCH SECTION

5. HABITAT CLASSIFICATION

- Logical basis
- Anglian rivers (summary ... refer to previous outputs)
- Comparison of river types

6. HABITAT VALUE

- Species richness / diversity
- Contribution to different river types
- Rarity of species

APPLICATION SECTION

7. RIVER CORRIDOR SURVEY

- Description of relevant RCS methodology (NCC, NRA etc)
- Coverage of instream habitats
- Method for incorporation

8. CONSERVATION CLASSIFICATION

- Description of relevant methodology (NRA, SERCON etc)
- Coverage of instream habitats
- Method for incorporation

9. WATER QUALITY ASSESSMENT

- Description of relevant methodology (BMWP, RIVPACS etc)
- Accounting for habitat status
- Method for incorporation

10. PHYSICAL RIVER MANAGEMENT

- Description of aims / practices
- Use of habitats in planning
- Measures for post-project appraisal

REFERENCES

BIBLIOGRAPHY

- Relevant material not cited in text

APPENDICES

- Any lengthy supporting material reproduced for reference
- Species lists and full results of data analysis
- Summary of any computer programs

ANNEX (SEPARATE VOLUME)

- Raw data
- Computer program code listings

4. FINANCIAL STATEMENT

4.1 Expenditure – previous six months

The expenditure over the six months from February to July 1993 has been as follows:

| | | |
|----------------|-----------|---|
| 1. Salaries | £11315.51 | (Dr C. Smith as full-time Research Associate) |
| 2. Overheads | £ 4526.21 | (at standard University rate) |
| 3. Consumables | £ 492.89 | (sample and specimen containers, preservatives) |
| 4. Transport | £ 1295.33 | (incl. share of tax and insurance on vehicle) |
| 5. Total | £17629.94 | |

This is broadly along the target expenditure pattern since the major element is full-time salary of Dr Smith.

4.2 Expenditure against budget to date

The expenditure for the first year of the project (1991-92) was £30,000 and the NRA-approved expenditure for the second year (1992-93) was £33,470. The actual expenditure for the financial year April 92 - March 93 was £35,208.49, an overspend of £1738.49. This arose because the combination of salary increment plus inflationary pay award was higher than allowed for in 1991-2; and because summer technical assistance in 1992 was needed for four weeks longer than anticipated. In the present year the salary award has been lower and the summer help supplemented by a Danish exchange student, so the overspend will not recur.

At present this overspend has been carried forward to the current final year. The anticipated total expenditure for this final year of the project is therefore in the region of £37,000. A precise budget estimate to the end of the project is being prepared by the Finance Office of the University at present, and will be ready within a short time. A response to this projected expenditure is requested.