

Research and Development

Final Project Report

(Not to be used for LINK projects)

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Research Policy and International Division, Final Reports Unit

DEFRA, Area 301

Cromwell House, Dean Stanley Street, London, SW1P 3JH.

An electronic version should be e-mailed to resreports@defra.gsi.gov.uk

Project title

River sediments and habitats and the impact of maintenance operations and capital works

DEFRA project code

FD1920

Contractor organisation and location

HR Wallingford, Wallingford

Total DEFRA project costs

£ 29,448

Project start date

01/07/03

Project end date

31/03/04

Executive summary (maximum 2 sides A4)

In the past channel maintenance has been carried out with the objective of maintaining river channel conveyance and providing land drainage. In selecting methods of channel maintenance sometimes little regard has been paid to the impact that removal of vegetation or sediments may have on habitats and the whole sediment dynamics of the river at the reach and catchment scales. There is a growing realisation that by understanding the interactions between sediments, habitats and conveyance it should be possible to develop methods and advice on best practise for carrying out maintenance that is both effective and minimises the adverse impacts on the environment.

This report describes the first stage of a project to improve our understanding of the interactions of sediments, habitats and conveyance as affected by maintenance operations and capital works. The primary objective of this first stage is to identify the requirements for field trials, identify suitable locations, data collection requirements and protocols for data quality, checking and storage.

The results of this project will be used to specify Stage 2 of the project. It is recommended that this consist of a programme of study based on new field data that would be collected as part of Stage 2 and analysis of existing data. A list of field sites has been compiled and the issues that can be addressed at each site identified. The data that needs to be collected can be classified under the headings:

- Historic data
- Hydrological data
- Maintenance regime and forward planning data
- Morphology and sediment data
- Habitat data and
- Biotic data.

In addition it is recommended that data from the RHS database is analysed to provide supplementary information relating to river types and maintenance works that are not covered by the field sites.

A recommended programme has been developed for Stage 2. The risks associated with Stage 2 have also been considered and methods to manage them have been suggested. The primary risks are associated with the flow conditions that may be experienced during the period of the field investigations. These flow conditions will be monitored during the period of the field work and this information will be used in interpreting the data that is collected.

An estimate of the potential benefits of Stage 2 has been prepared and compared with the likely costs. These indicate that the payback period for Stage 2 is less than a year and that the Benefit/ cost ratio exceeds 10 if the discounted benefits are calculated over a 20 year period with a discount rate of 5%.

Scientific report (maximum 20 sides A4)

The scientific results of this project are described in the HR Wallingford Report : River Sediments and Habitats and thw Impact of Maintenance Operation and Capital Works: Stage 1, HR Wallingford Report EX 4929, March 2004.

The contents list of this report is as follows:

Introduction

- Introduction
- Scientific setting

Project approach

- Introduction
- Workshop 1
- Workshop 2

Nature of maintenance work considered

Characteristics of required sites

Existing sources of data

- Introduction
- River Habitat Survey
- LOCAR
- Central Fisheries Board, Eire
- Experiences in the USA

Approach to Phase 2

- Introduction
- Monitoring and data collection recommended for Stage 2
- Use of existing data
- Approach to the analysis of the data related to the project objectives
- River management procedures and costs
- Analysis of data

Selection of sites

Specifications of data protocols for measurements to be taken at sites

Programme for Phase 2

Dissemination

Costs for Phase 2 and potential benefits

Risks and risk management

Conclusions and recommendations

References

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Appendices

- 1: Attendees of workshops
- 2: Details of sites considered
- 3: Data protocol for field studies