

# River Sediment & Habitats: The Impacts of Maintenance & Capital Works

The management of sediment in watercourses within England & Wales is likely to become more important in the coming years and decades. This is due to the anticipated affects of climate change on rainfall intensity and frequency, and the associated increasing delivery of sediment from upstream watercourses and catchments. The management of this sediment will have to be carried out against the background of the increased protection afforded to hydromorphology and ecology as part of the Water Framework Directive and Habitats Directive.

In response to these drivers the Joint Defra/Environment Agency FCERM R&D Programme initiated Stage 2 of project SC040015 - River Sediments and Habitats and the Impacts of Maintenance and Capital Works, this summary discusses the findings and outputs of Phase 2 of the project and within the context of the project as a whole.

The overarching aim of this research has been to improve our understanding of the interactions between sediments, habitats and watercourse sediment management actions. The work has provided us with a detailed insight into the 'linkages' between sediment sources and pathways, habitats and channel conveyance, with an emphasis on:

- Developing the evidence base for a more thorough understanding of sediment processes at the catchment, reach and site scales;
- applying this understanding to the analysis of the impacts of sediments on **flood risk and habitats** when deciding whether or not to perform maintenance operations and improvement works; and,
- understanding when, where and how to undertake sediment management or maintenance activities in a watercourse.

The findings of this project are presented in three main reports:

1. River sediments and habitats and the impact of maintenance operations and capital works, Report on Stage 1 – R&D Technical Report FD192-/TR

2. River Sediments and Habitats Review of Maintenance and Capital Works: Report on Stage 2 – Evidence Report SC040015/R1
3. The Key Recommendations for Sediment Management – A Synthesis of River Sediments and Habitats Review of Maintenance and Capital Works: Report on Stage 2 – Evidence Report SC040015/R2

Five field study sites were selected during Stage 1 to represent different channel types and sediment management interventions across a broad geographical range of particular relevance to FloodRisk Management.

The full Stage 2 technical report details the data collected and its analysis from the five field sites. These field data have been further supplemented by desk studies of the historical and contemporary watercourse management at the study sites together with an evaluation of available Environment Agency guidance on channel maintenance policies and practices.

The Stage 2 data and knowledge is further synthesised into recommendations for improved sediment management and presented within the provision of an overarching framework of premises and principles relating to sediment management that underpin the more detailed advice available in this project record. The Premises and Principles are designed to prompt those dealing with the management of sediment in watercourses to consider:

- The cause of the sediment problem.
- The range of different options for managing the sediment problem.
- The implications of these options in relation to other watercourse management requirements including conservation, Water Framework Directive (WFD), and FRM/ Land Drainage.
- To use these to inform the selection of the most appropriate option.
- To ensure that a robust monitoring process is implemented to check the effectiveness, efficacy and environmental impact of the selected option.

It is hoped that, in particular, that the report on the 'Key Recommendations for Sediment Management' will support the optimal delivery of flood risk management that seeks to be both, cost effective while also providing significant environmental benefits. This report is aimed at all practitioners (particularly staff from: FRM; Operations Delivery; Local Authorities; and, the Internal Drainage Boards) and those involved in sediment-related management of watercourses and channels.

The key recommendations arising from this study have been further articulated in an E-learning package which can be found in <http://learning.environment-agency.gov.uk/courses/sediment/launcher.html> which will be available for all Environment Agency, LA and IDB staff to use.

The outputs of this and future projects will allow river managers to embrace methods which reduce the environmental impact of their works and enhance the environment.

This work was undertaken by a consortium of experts from HR Wallingford, Royal Haskoning, River Restoration Centre and Alconbury Environmental Consultants, who have been guided by a Project Steering Group drawn from independent experts and potential end users.

This summary relates to information from project SC040015 Phase 2, reported in detail in the following:

1. SC040015/R1: River Sediments and Habitats Review of Maintenance and Capital Works: Report on Stage 2:  
<http://publications.environment-agency.gov.uk/pdf/SCHO1010BTBX-E-E.pdf>
2. SC040015/R2: The Key Recommendations for Sediment Management – A Synthesis of River Sediments and Habitats Review of Maintenance and Capital Works: Report on Stage 2:  
<http://publications.environment-agency.gov.uk/pdf/SCHO1010BTBW-E-E.pdf>

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