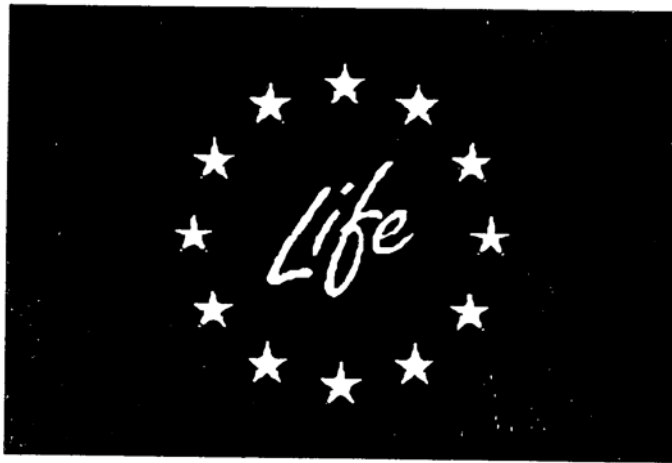


**River restoration:
Benefits for integrated catchment management**

Monitoring Programme

Year 2 (1995) Interim Report

LIFE project: 93/DK/A25/INT/2504



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Executive summary

This interim report describes the preliminary results of the monitoring programme for the European Union LIFE funded project "River restoration: benefits for integrated catchment management". The report includes: (i) an update of baseline information not available for the 1995 Interim Report and (ii) results of the early effects of the site construction works on the downstream 'impact' reaches.

Channel restoration works have been completed (or are close to completion) on all three demonstration sites (the R. Brède, South Jutland, the R. Cole, Wilts/Berks, and the R. Skerne, Co. Durham). Channel lengths have been increased by between 10% (R. Cole) and 40% (R. Brède). Mean channel widths have been reduced on the R. Cole and mean channel depths have been reduced on the Cole and the Brède. Hydraulic modelling suggests that channel restoration will reduce flood peaks. For example, on the R. Cole it is predicted that the flood peak for a 1:100 year flood will be reduced by about 30% and floodplain water storage increased by about 70%. Monitoring is now focusing on confirming model predictions.

Impacts of the construction works on downstream reaches have been monitored. There is evidence of considerable sediment liberation from the restored reaches. On the R. Brède approximately 80 times more sediment was exported from the restoration reach than the upstream control reach during the construction phase. Suspended sediment concentrations in the R. Cole impact reach also increased, and was at least five times greater than the upstream control during the period of early autumn rains in October 1995. On the R. Brède releases of nutrients (particularly Total Phosphorus) were also pronounced during the construction phase, with Total Phosphorus export from the restoration reach 40 times greater than from the upstream control.

Preliminary information on the downstream impacts of restoration on plant and invertebrate communities is available from detailed monitoring on the R. Cole. Species richness and abundance of submerged aquatic plants did not change during 1995, despite considerable sediment releases. However, it should be noted that the aquatic plant community in the downstream impact reach was already extremely impoverished.

Aquatic invertebrate communities showed consistent seasonal changes in both years, with species richness lower in autumn. Species rarity remained constant in both seasons as would be expected. Invertebrate species richness, rarity and BMWP scores show the same trends at both the upstream control, restoration and downstream sites, suggesting no immediate short-term effects due to the construction work.

Appraisal of the overall economic benefits of restoration began with the pre-works public perception study on the R. Skerne. This showed that local people used the site regularly, on average visiting the site weekly in summer and every fortnight in winter. There was a high level of approval for the restoration scheme with 70% of local residents "strongly in favour" of the scheme. Results from both enjoyment valuation and willingness-to-pay assessments suggest that there is a significant monetary benefit to be obtained in improving the river and the surrounding parkland.

A literature survey has been undertaken to compile information for the economic evaluation of the benefits of restoration projects for flood defence, water quality, fisheries and recreation and effectiveness of ecological improvements. Information from all three restoration sites will contribute to the appraisal, which will be carried out in spring/summer 1996.

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