

# Improve channel geomorphology to create habitat

## Project Summary

**Title:** Moreton Channel Restoration Project

**Location:** Moreton, Dorset, England

**Technique:** Placement of large woody debris and bed and bank re-profiling

**Cost of technique:** £

**Overall cost of scheme:** £

**Benefits:** £££

**Dates:** 2010

## Mitigation Measure(s)

Manage natural obstructions in the channel

Improve channel geomorphology to create habitat

Restore aquatic habitats in modified watercourses

Preserve and improve water's edge and bank side habitats

## How it was delivered

Delivered by: Environment Agency as part of River Frome Rehabilitation Plan

Partners: Frome, Piddle and West Dorset Fisheries Association, Moreton Fishery Syndicate, Natural England



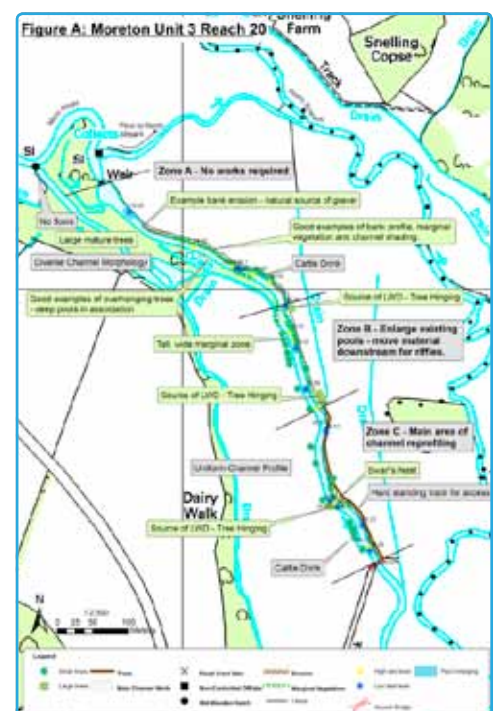
The key aims of the project were to increase the amount of large woody debris within the channel and to improve the river bed morphology to enable the reach to support all fish life stages. All images © Environment Agency copyright and database rights 2013

## Background / Issues

The reach of the River Frome at Moreton was identified in the River Frome Rehabilitation Plan as requiring morphological enhancement as the existing bed and bank profiles were uniform, showing little variety in terms of habitat and geomorphological features. Extensive dredging is not thought to have happened here in the previous decades, unlike other reaches of the river, but the condition has noted as poor. The regular bed profiles had few deep pools and supported few adult fish. There was also little woody debris within the channel to provide refuge for invertebrates and juvenile fish or to increase flow diversity which could create natural bed scouring and sediment deposition.

Under the Water Framework Directive, the River Frome is failing its target of Good Ecological Status for fish and macrophytes, and is in unfavourable condition as part of the Site of Special Scientific Interest, both of which were addressed through this project.

**Moreton Channel project scheme design. Mapping:** © Ordnance Survey Crown copyright. All rights reserved. Environment Agency, 100026380



## Step-by-step

The Moreton Channel project aimed to reprofile morphologically uniform sections of the river bed. A variety of bed features were created by using a long reach excavator to reprofile existing river gravels within the channel. The features created included a more defined low flow channel, deep pools, shallow riffles and exposed gravel bars.

The introduction of large woody debris (LWD) sourced from varying parts (crown, root ball, trunk, whole trees, half trees or branches) of local trees in combination with the new bed features has created a greater range of habitats designed to support the assemblage of macrophytes and fish that is expected in this reach of the River Frome SSSI. The varied bed profile also provides a wide range of habitats for fish throughout all their life stages, and allows the reach to be more resilient during low flows.



(1) Bed reprofiling; (2) Bank reprofiling; (3) Riffle creation; (4) Bed raising

## Benefits

The scheme has delivered the following benefits:

- Reprofilng 100 m of bank and 350 m of river bed has considerably improved the geomorphology of the river channel, creating deep pools, shallow riffles and emergent gravel bars. In particular, these works have improved flow variation and increased river bed morphological diversity. Therefore, this technique is also a cost effective method of improving channel morphology.
- Development of wider margins to enable establishment of marginal aquatic vegetation.
- The introduction of LWD throughout the reach has increased the variety of habitats available for aquatic ecology.



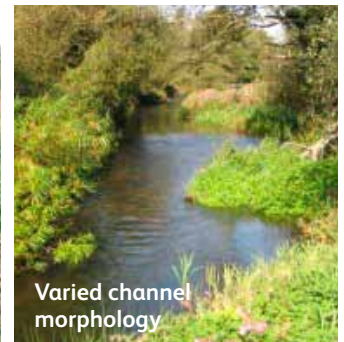
LWD installation



Wide margins



Varied channel morphology



Varied channel morphology

## Lessons Learnt

LWD installation is a relatively cheap and simple method to improve a reach. It provides fish refuge, flow variation and bed scouring which in turn can increase spawning success and adult fish habitat. Using the partnership approach with the Frome, Piddle and West Dorset Fisheries Association meant that more could be achieved with small funds available.

The fishing syndicate recognised the value of the habitat improvements and fully embraced the concept of LWD use. They actively encouraged more to be hinged into the channel by the end of the project. This level of stakeholder support could be the most beneficial aspect of the project in the context of the wider River Frome, as it will help to promote the benefits of LWD use as a cost effective means to improve river habitats to a much wider group of stakeholders.

Part of the aims of the project was to climate proof the river enchantment to allow the reach to be more resilient to low flows. There were some fears initially that some of the bed reprofiling was too bold. However in the 18 months post-works near-drought conditions have been experienced and the reach now supports many more fish and other aquatic life than it had done in previous low flow events.

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