

Blenheim Palace Project

Technique: Creating side bars, riffles and back waters

Project location: Woodstock
River: Evenlode
County: Oxfordshire
Project start date: September 2005
Project end date: March 2006
Length: 2km
Cost: £110,000
Upstream grid reference: SP 432 145

Gravel riffle created
as an upstream
recharge area



Site background

There are significant recruitment problems in the River Evenlode and its tributaries for rheophilic fish, especially barbel, chub and dace which is partly due to the loss of spawning and nursery sites for these fish. Over many years, this stretch of river has been widened and dredged, resulting in the channel being over-sized (averaging 14m wide and 2m deep) and has few features that provide habitat or refuge for juvenile fish from the fast-flowing main river. The local angling club is also experiencing a loss of membership due to the dwindling fish stocks. The aim of this project was therefore to provide additional spawning and nursery habitat in order to increase the population of fish in the river and to revitalise the quality and the experience of the angling.

Objectives

Create a more natural channel width with a diversity of flow characteristics and habitats (including spawning and refuge areas for fish) and to enable more frequent flooding at this location (a natural, rural floodplain).

Design

- Locally-sourced limestone was placed in the river channel to form twelve side-bars on alternate banks. The bars, which averaged 60m in length, were between one-third and one-half of the channel width, thereby constricting the channel and increasing flow velocities. They were created from varying sized material; coarse material (150mm diameter) was placed at the upstream half and medium-sized stone (100mm) was placed at the downstream half. This was all overlain with a layer of small stones, each of 40mm diameter. Some of the side bars were linked with riffles.
- Upstream of the works, a "recharge area" was created - a riffle 100m long, 300mm high and the whole width of the river (14m), made up from the smallest grade of stone. Over time, this material will wash downstream, consolidating the bars and providing additional stone for spawning etc.
- Two shallow semi-circular backwaters were excavated in the riparian meadows - each 1m deep, 20m in diameter and linked directly to the river. They are normally above the water level, but as levels rise in times of high flow, water will seep into these areas, but will be of negligible flow, therefore providing ideal refuge for juveniles fish.



Excavated backwater

Subsequent Performance - RRC's views (2006)

The project was visited soon after completion and before any high flow events had been able to move the gravel. In the first phase it was noted that some gravel had been placed artificially high above the summer water level providing a low bank shelf rather than gravel bar feature. The second phase was more natural looking. Clearly a lot had been learnt during the project construction in terms of gravel placement and plant use. It is predicted that the river's natural process will soon transport much of this imported gravel and a more morphologically natural bed structure will develop. Increase in floodplain inundation rates has yet to be experienced.



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This site was last visited by RRC staff on 12th May 2006

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