



Catchment Restoration Fund (CRF) Project Briefing Note

Water Quality Restoration on the River Dunn: Canal Bypass Weirs

The historic Kennet & Avon Canal and river navigation between Reading and Bristol was originally opened in 1810. Following years of disuse, the canal was finally fully re-opened in the late 1990's as part of a £29 million, 5 year Heritage Lottery Fund programme. Since reopening, the canal has brought significant social and economic benefits to the area, as well as many environmental benefits as a green corridor for wildlife supporting many protected species.

At Froxfield the canal runs parallel to the River Dun, and downstream of Hungerford it connects to the River Kennet SSSI. The Kennet is a nationally important chalk stream, supporting an important range of specialist invertebrates, aquatic plant and fish species, currently in unfavourable condition.

Under higher flow conditions, existing canal 'overspill weirs' help prevent flooding by transferring excess water directly from the canal into the Dun. Due to the location of the canal, at the lowest point of the valley adjoining the Rivers Dun and then Kennet

there are a number of locations where agricultural run-off as well as sewage treatment effluent can enter the canal channel. These, and other point sources, generate significant volumes of suspended solids and nutrients, which in the naturally slower flowing canal create an ideal environment for algae to bloom, especially during early spring. Subsequent to rainfall events, the algae and sediment rich canal water is then transferred to the more sensitive Dun via existing overspill weirs along the canal. This project aims to remediate that situation by installing new lock bypass weirs at seven locks along the canal currently connected to the Dun. These new weirs will ensure that surplus canal water generated by heavy rainfall will be kept in the canal rather than over-spilling into the more sensitive river ecosystem, effectively separating canal and river flows. Another benefit will be that the new weirs will enable flows in the canal channel to increase marginally, thereby reducing the residence time of water in the canal and thus algal bloom capacity.

In the Kennet Catchment Management Plan; Consultation Draft: February 2012, the plan identified 'six' priority issues for improving the condition of the river from its current 'moderate' condition (WFD). The first of these was; Interaction with the Kennet & Avon Canal.

Key facts	
River Basin District	Thames
Catchments	River Dunn
Outcomes	<p>Work to achieve good ecological status of the River Dunn and River Kennet (currently moderate) by managing soil and algae discharges. Benefits will be particularly evident during early spring and throughout summer, when river (fish) ecology is at its most sensitive.</p> <p>Work towards favourable status of the River Kennet SSSI and improve the River Dunn area of the Freemans Marsh SSSI by improving the water quality and thus restoring the ecology in both rivers</p>
Start Date	January 2012
End Date	March 2015
Budget	£945,000 (£615,00 from CRF)
Project Partners	Thames Rivers Restoration Trust (TRRT), Environment Agency (West Thames), Natural England, Action for the River Kennet (ARK), The Waterways Trust (now part of Canal & River Trust)

Description of Works

The objective of this exiting three-year partnership project is to construct seven new lock bypass weirs between locks 64 and 70 along the Kennet & Avon Canal in the Bedwyn area, Wiltshire. New lock bypass weir channels will be created to the side of each of the seven lock pounds, allowing water to transfer downstream by effectively 'bypassing' the lock chambers. They will enable 35000 cubic metres of water to be moved down the canal each day without the need to fill and empty locks, the equivalent of 14 Olympic-sized swimming pools.

The project has taken over five years to develop with a broad and active partnership including the Canal & River Trust (CRT), Environment Agency (EA), Catchment Restoration Fund (CRF), Action for the River Kennet (ARK), the Thames Rivers Restoration Trust (TRRT) and other partners. The feasibility, options and design phase for the project was generated by the Trust, and undertaken during early 2011 by engineering consultants Hyder, in partnership with the EA, with the costs supported by the Thames Rivers Restoration Trust via an £82,000 project development grant.



Once a design was agreed for each lock and the reports finalised, the Trust submitted an application for CRF funding in early 2012 for £615,000 towards the delivery of the seven new bypass weirs, with an overall project estimate of £945,000 over three years. Following the news of a successful funding application in April 2012, the project team has worked closely with the Environment Agency and started on site in January 2013 using the Trusts framework contractor May Gurney, with the aim of completing two of the seven weirs by the end of March 2013. This was successfully achieved and the contractors are now progressing with the construction of a further three weirs during the 2013, with the remaining two weirs to be completed by June 2014. Monitoring to gauge how successful the project has been will involve canal level & overspill event monitoring.

What will success look like?

The project will result in a reduction of canal & river interaction in the Dun valley, reducing the impacts of rural diffuse pollution within the River Kennet SSSI and River Dun part of Freemans Marsh SSSI over several miles of watercourse. It will also contribute towards achieving good ecological status of the Rivers Dunn and Kennet (currently moderate), particularly for fish, with the benefits particularly evident during early spring and throughout the summer when river ecology is at its most sensitive.

In addition the new weirs will deliver a localised improvement to the ecological status of the water in the canal by increasing flows and reducing the retention time and therefore the risk of algal blooms, especially during early spring and summer.

About the team
CRT Environment Manager: Oda Dijksterhuis
CRT Project Manager: Simon Hughes
CRT Enterprise Team: Richard Rutter, Mike Youe
CRT Finance / PR: Maureen Sydric, Joe Coggins
Other contacts
Environment Agency: Alison Love, Graham Scholey
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Designer: Hyder Consulting
Contractor: May Gurney



Department
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Canal &
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