



Catchment Restoration Fund (CRF) Project Briefing Note

Burton Weir (Upper) Fish Pass

Many fish species such as the salmon, sea trout and eel have to migrate hundreds of miles from the sea to the headwaters of rivers such as the Trent to spawn. Other coarse fish such as the barbel, chub, roach and perch do not migrate from the sea but they do need to be able to swim up and downstream to reach different parts of the river that will provide suitable habitat so that they can complete their lifecycle.

Weirs, such as this one, can prevent them from migrating to upstream and into the many tributaries of the Trent system. They create barriers that divide up a river into isolated sections. As a result, wildlife, water, silts and gravels are no longer able to move freely through the river corridor which in turn means that it no longer functions effectively as a healthy river ecosystem.

It is sometimes possible to remove a weir but where this is not possible because, for instance, it has historical or cultural significance, the next best option is to build a channel

around it or alternatively a ramp that will allow a range of fish and other river creatures to move up and down. The option of building a rock ramp here was chosen following an Environment Agency Feasibility Study as being the least visually obtrusive whilst providing good fish passage for all species and best value for money.

Burton Bridge weir falls within the 'River Trent from Anker/Mease confluence to River Dove' water body. It is classified as having poor ecological potential. This poor potential is due to diatoms being assessed as being at poor quality, with fish and invertebrates at moderate quality. By improving fish passage along the River Trent, we will help the river to move towards good ecological potential.

Tackling this weir is part of a long term plan to enable fish to live as naturally as possible in the Trent and its tributaries.

Description of Works

The 12m long, 5m wide rock ramp will be built at a gradient of 1:20, with large boulders set in a matrix of armour stone of a range of sizes. It is set within an existing sluice structure and will have blockstone side walls. The fish pass has been carefully designed so that the slope is shallow enough for fish to swim up, with faster and slower areas where they can rest on their way. It will also provide extra habitat for a range of fish and aquatic invertebrates to live in for parts of their life cycle.

The works will be carried out by Castleford Engineering, who have a great deal of experience in similar projects, particularly in the south west. It is expected to take some 4 weeks, river levels permitting. The challenges at this site are frequent flooding and the absolute need not to affect the flood walls during construction.

Key facts

River Basin District	Humber
Catchments	Tame, Anker and Mease
Outcomes	Fish passage for all species
Start Date	December 2012
End Date	May 2013
Budget	£143,000
Project Partners	Trent Rivers Trust, Environment Agency, East Staffordshire Borough Council

Steel piles will be used to provide strength at the top and bottom of the ramp so that the stones and boulders stay in place, and will also serve to block water while it is being built. They will then be cut off close to the river bed where they will not be able to injure wildlife or people.

An interpretation panel will explain the fish pass to the public, as the site has excellent public access, being alongside the popular Meadowside Leisure Centre.



What will success look like?

To be successful, the fish pass will survive a wide range of flow conditions over many years with minimal maintenance.

At present this weir is the 14th obstacle in the Trent on their way from the sea, so tackling this weir is part of an overall plan which relies on effective ways for fish to pass major obstacles like Cromwell Weir at the tidal limit of the Trent at Newark.

A wide range of fish species will be able to migrate up and downstream to reach the conditions they need for different parts of their life cycle – laying their eggs (spawning), hatching and living as small fry, growing into juvenile and adults. These will include coarse fish such as barbel, chub, roach, gudgeon, perch, dace, common bream and grayling, and salmon and sea trout.

Fish will be able to reach restored reaches of the river upstream which have recently been restored by Staffordshire Wildlife Trust and the Environment Agency to provide improved habitat for all river creatures, and birds, at the Catton estate and at Staffordshire Wildlife Trust's Croxall Local Nature reserve. Banks have been restored to a more gently sloping angle and gravels, living trees and tree roots have been introduced to provide habitat. A large backwater has also been recreated that will also provide refuge for fish during floods. These projects are all linked by the Central Rivers Initiative www.centralrivers.org.uk.

As it is made with a matrix of stones of different sizes, the fish pass will also provide valuable habitat in itself for a range of invertebrates. This will help the invertebrate population, which is also failing to reach good ecological status.

Success will also mean that many people who hadn't thought about it before will realise that weirs are barriers to the healthy functioning of our rivers, and the life they support. It will encourage people to support efforts to improve river functioning which allow wildlife to thrive, and help to meet WFD requirements.

About the team

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