



Habitat Advisory Visit

River Colne, Lancashire

On behalf of the Colne Water Angling Club

June 2006

Jointly Sponsored By



"When you work and fish on this river you may get the odd bottle thrown at you, but you just need to roll-up your sleeves and get on with it!"

Andy Pritchard, Colne Water Angling Club

1.0 Introduction

This report is the output of a site visit undertaken by the Wild Trout Trust on the River Colne, Lancashire on 5th June 2006.

Comments in this report are based on observations on the day of the site visit and discussions with Mr Andy Pritchard of the Colne Water Angling Club.

Normal convention is applied throughout the report with respect to bank identification, i.e., the banks are designated left hand bank (LHB) or right hand bank (RHB) whilst looking downstream.

2.0 Fishery Overview

The Colne Water Angling Club controls in excess of 5 miles of fishing on the Colne between Barrowford and upstream of the town of Colne to the confluence with the Wycollar Beck. At this point the river ascends (not CWAC water) to the moors and the clubs reservoir at Laneshawbridge. The Colne forms part of the Ribble catchment and primarily flows through millstone grit geology.

The Colne is currently managed as a wild trout fishery, with the last stocking event having taken place over 5 years ago. The club have leased the fishing rights on the river since 1952 and currently are around 100 members strong. Currently most of the member interest is focused in the Reservoir at Laneshawbridge, however CWAC would like to continue to develop the 'wild' characteristics of the river. No formal catch returns were available for inspection, however there is thought to be a good trout population structure with good spread of year classes. The Environment Agency are currently developing a Fisheries Action plan for the Ribble catchment and the Ribble Fisheries Association have recently begun to discuss the possible salmon conservation measures /re-introduction of salmon into the Colne. CWAC's major concern re the re-introduction is the potential lack of viable habitat to support both trout and salmon.

3.0 Fishery Habitat Description

Several reaches of the river were visited during the course of the inspection. However this report will split the visit into three distinct reaches.

- 1) Barrowford to Colne
- 2) Colne Town Water
- 3) Above Colne (Carry Bridge - Ball Grove Nature Reserve)

3.1 Barrowford to Colne

This geomorphology of this section of river active with a well developed pool riffle system. Both bank are characterised by a fringe of deciduous woodland. In many places the banks have been engineered with block stone, which is now in various states of disrepair. The LHB immediately above the M65 road bridge is eroding and requires urgent attention to stop the ingress of the river behind the bridge supports during peak flood flows when erosive forces are at their greatest.



A) Good pool: riffle sequence



B) Erosion near M65 road bridge

Water quality appears to be affected by the sewage treatment works upstream in Colne. At the time of the visit the water was visibly turbid and was tinged with the smell of effluent. There is also a pipe on the LHB discharging into the river above the motorway bridge. It is recommended that CWAC contact the Environment Agency to assess the nature and quality of this discharge. Generally speaking the Colne can be classed a spate river. Downstream the village of Barrowford has recently undergone a £20 million Environment Agency flood defence capital improvement project to address historical problems of severe flooding. The river skirts an relict landfill site and deciduous wood on the RHB and there are localised erosion problems which could potentially affect habitat and water quality. There are large amounts of household and industrial waste (pallets, prams, plastic sheeting, wire, etc) in the channel, some of which represents a considerable hazard to wildlife and anglers.

Throughout this reach there is an apparent lack of deeper pool habitat, to provide cover from swim-up fry and adult fish. Riffle areas appear to have a considerable loading of fine sand limiting their value as potential spawning redds.



C) Household / Industrial Waste – Note the 'milky' colour of the water from Sewage Works and the deposition of sands within the gravel matrix.

As the river enters the Borrowdale Community Woodland area there are several areas of localised erosion on the LHB. Opposite the Swinden housing estate previous block stone revetment work to protect the M65 motorway has been breached and the river is eroding on the RHB and forming a vegetated mid-channel shoal. This has caused a major bank slump. The slump has taken several mature oak trees with it that remain unscathed! If left unchecked this land will continue to erode quickly which will deposit more fine sediment in the river which may affect spawning redds further downstream.



D) Failed block stone revetment, resulting erosion and major land slump.

3.2 Colne Town Water

The river now runs through the centre of Colne where a once thriving cotton milling industry was based. Evidence of the industrial past and its lasting effects on the river channel and its ecology is obvious. Most banks are heavily reveted with stone and in places are twenty feet higher than the wetted perimeter. With milling all but disappeared the river is slowly recovering some more natural characteristics. In places pool:riffle sequences are re-forming, with associated vegetated shoals and islands.



E & F) – Nature slowly reclaiming the industrial landscape (tree growth / natural in-channel features)

There are numerous old mill structures and artificial channel features all of which represent considerable barriers to fish passage (brown and possibly future sea trout and salmon movements).



G) Relict mill structure and block stone channel upstream of Waterside Bridge.

In the Millennium Green area there again are considerable amounts of domestic and industrial rubbish in the channel. Efforts by the Fishing Club and the Waterside Community Group have paid some short-term dividends.

Throughout the reach there is a lack of tree cover and marginal plant growth that provide cover for trout.. However where trees and shrubs have colonised wild trout were observed in this reach in excess of 1.5lbs.

Water clarity and quality is much improved above Colne STW.

3.3 Above Colne (Carry Bridge - Ball Grove Nature Reserve)

Here the river changes its characteristics once again and starts to become semi-natural in its nature. The physical characteristics of the channel are characterised by pools and riffles with a gently meandering planform. Tree growth in some places is leading to excessive shading which could limit in-channel and bankside plant growth. Poorly established margins could potentially facilitate local erosion hot spots.



H&I) Upstream of Carry Bridge and old bank / weir blockstones creating useful pool habitat.

The channel is still confined within blockstone banks. In many places these historical features of a past industrial age are in a state of disrepair.. Where the river has broken down these revetments natural bank profiles have also formed with good fringing plant cover. This habitat is extremely important for juvenile brown trout, both in terms of cover from predators and as a source of invertebrates for food. In many places individual block stones have created useful pool habitat. As with the river downstream of Colne there appears to be a general lack of deeper holding pool habitat, other than shallow pools downstream of riffles and upstream of weirs.

As the river moves upstream through the Ball Grove nature reserve large seams of millstone Grit are exposed creating some interesting long glides and pools. The river now leaves the wooded section and enters a landscape dominated by grazing. In places the fencing has fallen into a state of disrepair and cattle have gained access, causing problems of bank erosion. These areas could possibly be a source of the fine sediment deposition observed further downstream below Colne.



J) Areas of localised erosion

Although this section of river is more rural there are still numerous relict mill structures inhibiting fish passage. One or two mill structures have been destroyed by the powerful flood flows that come off the Pennines each winter. On the one hand this has solved fish migration issues but in many places it has created localised erosion problems as the river tries to establish a new equilibrium.



K) Semi-collapsed mill structure

Again there appears to be a general lack of holding pool habitat, other than shallow pools downstream of riffles and ponded sections upstream of weirs.

4.0 Recommendations

The Colne is a fascinating river with a great deal of potential for development as a wild trout fishery. With varying habitat types and widely differing land uses there really is a lot squeezed into the five short miles that comprise the CWAC fishery. However it is these differing land uses and past channel management that have impacted what in pre-industrial times must have been a sustainable wild trout fishery of some standing. The Colne is now recovering from the impacts of the milling industry and the fishery now contains respectable numbers of wild trout, something that even a few years ago no one would have thought possible. It was not that many years ago that the river used to run dark blue from effluent discharged into the river for the numerous denim mills in and around Colne.

The following are generic recommendations aimed at promoting an improved wild trout fishery for the three sections visited.

It is a legal requirement that all the works to the river require written Environment Agency consent prior to CWAC undertaking any project in the channel and within 8 metres of the bank.

Local EA Fisheries and Development Control staff should be contacted at the earliest opportunity to discuss any actions arising from this report CWAC wishes to pursue.

4.1 Generic Recommendations

4.1.1 Erosion Control & Fencing

River banks are constantly on the move, it is a natural part of the river processes of erosion and deposition. In places the banks of the River Colne are composed of soft sands and gravels, a highly erodible material.

The roots of bank vegetation bind the soil together, making it more resistant to the powerful erosion forces of the river. Livestock overgrazing can result in a loss of river bank vegetation which accelerates river bank erosion. This is a double edged sword for not only is valuable land lost, but the water can also become choked with sediment, which has a devastating effect on the biodiversity of the river.

There are many options for erosion control however CWAC should consider options that also deliver gains to the fishery and local biodiversity.

River banks can be re-profiled, seeded and planted with appropriate vegetation and the bank toe (bit next to the water), can be faced off with willow withies to protect it from erosion. 'Green' willow withies are woven through 'green' willow stakes, which continue to grow, putting out root systems and binding the soil together. In areas where grazing occurs fences should be repaired and installed. CWAC should contact landowners who may be able to get funding for this work through the DEFRA Entry Level and Higher Level Farm Payment Schemes. Fencing should aim to create buffer strips a minimum of 4m wide.



L) Use of willow withies, reprofiling and planting

The use of willow withies and willow stakes has proved to be less costly and more effective than 'hard' forms of river engineering. It is also sustainable and has far less environmental impact than the alternatives.

4.1.2 Creation of pool habitat

In many sections of the river the apparent lack of holding pool habitat may be a factor limiting the fishery. As with erosion control there are many options open to CWAC. A guiding principle in most schemes should be to avoid the purchase of expensive materials as much as is possible i.e. try to work with what the river can provide. In many locations there is an abundant supply of blockstone scattered on the banks and within the channel. This material could potentially be used to create small runs and pools using a long reach excavator to individually place stones in the channel (see figure 1). These small pools would be particularly useful for trout parr, which are highly territorial and require cover. The net result would be a more diverse flow and range of depths.

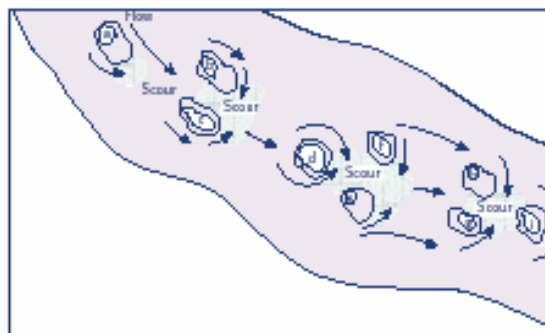
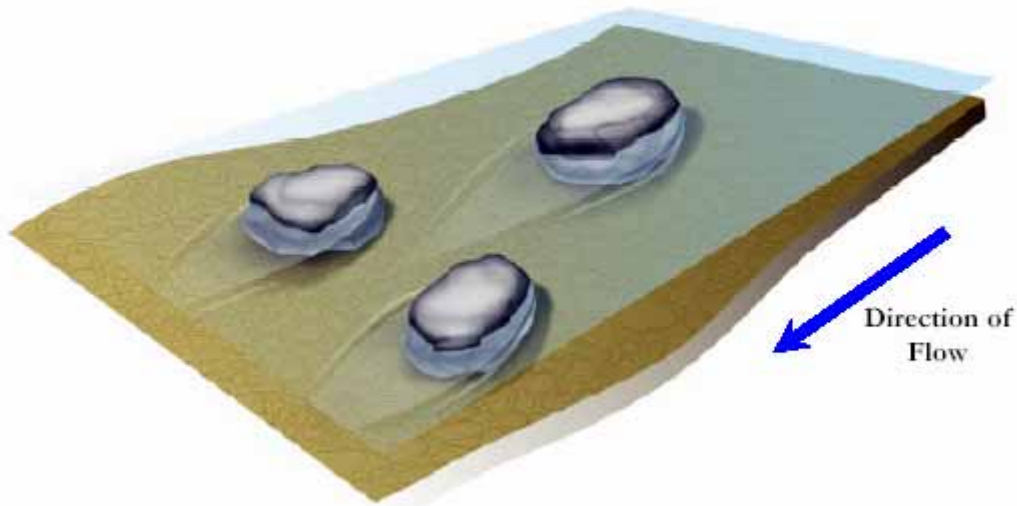


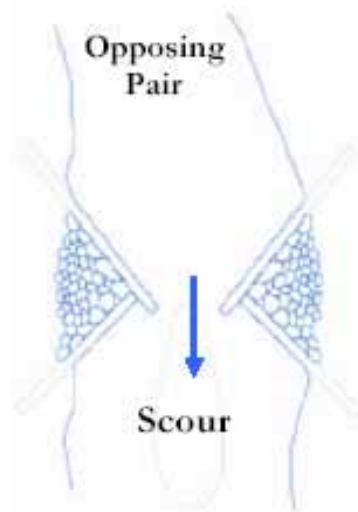
Figure 5: Use of different boulder configurations which may help create fish cover in certain types of stream. The examples show how single boulders (a), boulder pairs (b,c) or boulder clusters (d,e,f and g,h,i) can be used to encourage scour. Note boulders should be set well clear of the stream banks as not to accelerate bank erosion (after Cowx and Welcomme, 1998).

Figures 1&2 – Boulder / Blockstone Placement.

1

¹ Copyright Ontario Streams & Cowx & Welcomme 1998

Another option may be to use the block stone to create low vortex weirs or paired deflectors (see fig 2). These should ideally be located mid-way down long shallow pools in areas where smaller substrate is present to allow the creation of larger scour pools. Double Logs can be used but they should be pinned to the bed of the river with pins at least 2m deep to cope with the high energy flooding events that occur in the catchment. Electro fishing studies have shown these features to be particularly useful at holding numbers of trout parr



2

4.1.3 – Removing barriers to salmonid migration.

There are many impassable structures on the Colne. These represent a considerable bottleneck limiting the natural production of the fishery. Where possible structures should either be removed or modified to allow the free passage of salmonids from within and outside the catchment to the upper reaches for spawning.

Removing barriers to migration is both costly and technically demanding. However the formation of the Ribble Conservation Trust may prove to be a catalyst to address this considerable problem.

Below is an excerpt from the Environment Agency guidance on the fish pass options.

There are many types of fish pass in use in the UK today but most fish passes are of the following types.

² Copyright Ontario Streams

Pool and weir passes

These passes consist of a series of pools, which divide the large fall of water at the structure into several smaller falls. These pools perform the dual function of dissipating the energy of the falling water and providing resting areas for ascending fish. Typically the gradients achievable with these passes are of the order 10-15 per cent.

Baffled or steep passes

Fish passes of this type generally use a rectangular channel with a series of precisely positioned and shaped plates or 'baffles'. These baffles redirect the water flowing down the fish pass channel, thus reducing the average water velocity dramatically. These fish passes can operate at gradients of 20 or even 25 per cent and are typically very efficient in terms of the amount of water required for efficient fish passage.

Pre-barrages

In many cases, fish passage at small obstructions, in terms of the vertical height which has to be traversed, can be helped by provision of a small weir or weirs downstream of the main obstruction. These have the effect of splitting the distance to be traversed into smaller leaps or traverses. Such weirs can often be made of local materials and can look much more natural than some of the 'technical' civil engineering structures.

Artificial channels and informal solutions

Some of the most efficient fish passes have been found to be man-made substitutes for river channels. Such artificial river channels normally have a low gradient and extend from below the obstruction to a considerable distance upstream. Typical gradients range from 1 to 3 per cent making them particularly suitable for the passage of species that are difficult to accommodate with other types of fish pass (such as juvenile and smaller coarse fish). The gradient of the channel may be increased to nearer 4 per cent if energy-dissipating characteristics are built into the channel. These might include rock sills or deflectors, or sometimes a random arrangement of large boulders.

In summary, if an in-river structure is being substantially modified or rebuilt, or a new structure is built on a river frequented by migratory fish, then the local area office of the Environment Agency should be contacted. There are many modern solutions to fish passage problems but expert advice should be sought as simple mistakes at the design stage can incur substantial costs to rectify at a later stage.

3

4.1.4 – Engaging with local community groups.

As with many other rivers in urban areas the Colne suffers from a degree of socially and industrially induced problems, such as pollution and vandalism. By far the greatest problem is the use of the river as a convenient 'wet landfill site'. During the visit one could be forgiven for thinking the river contains wild and sustainable populations of pallets and prams! Other discarded materials such as wire and plastics represents considerable dangers to bird life as well as a health & safety risk to people enjoying the river. Recent river clean up activities undertaken by CWAC at the Millennium Green are a fantastic way of engaging the local community to respect their rivers. If CWAC plans to embark on a programme of river enhancements and restoration, community and local industry 'buy-in' will be vital to ensure success. The publicly accessible nature of the fishery should help with any bids for public funds. CWAC should establish links with local wildlife groups, Lancashire Wildlife Trust and the Ribble Conservation Trust. Whilst they may not be fishing organisations they wish to see a healthy environment, one that's good for people, wildlife and fishing!

4.1.5

Establishing a partnership with the Environment Agency

It is strongly recommended that CWAC contact the EA to discuss this report. The EA may be willing to initiate a partnership with CWAC to restore and enhance the Colne. Partnership with the EA could come in the form of 'in-kind' technical assistance with fisheries surveys and scheme design through to direct financial assistance.

5.0 – What next? -Making it all happen

The Wild Trout Trust is often able to provide further technical assistance and grants for recipients of Advisory Visits wishing to initiate projects. Visit the Practical Advice section of our website www.wildtrout.org for further information.

6.0 Disclaimer

This report is produced for guidance only and should not be used as a substitute for full professional advice. Accordingly, no liability or responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon comments made in this report.

