



## River Test – Chilbolton Common



An advisory visit carried out by the Wild Trout Trust – September 2011

## 1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on a beat of the River Test lying between the Hampshire villages of Wherwell and Chilbolton. The advisory visit was undertaken at the request of Mr. Peter Richie who owns a freehold rod on the fishery. The remainder of the fishing rights are let from the Church Commissioners and the tenant farmer, who sub-lets the sporting rights and rods to various private individuals. The beats are a combination of single bank main stream beats at the top and bottom section of the fishery and a connected carrier in the central section.

Some concerns have been expressed over the current condition of the fishery. Mr Richie perceives that the quality of trout habitat throughout the reach has slowly but steadily declined. Work carried out has largely been routine maintenance and stocking, mainly undertaken by staff employed by the tenant farmer. Mr Richie is keen to explore possible options for habitat enhancement that might lead to improvements in habitat for wild stocks and is looking for ideas to share and discuss with the joint owners of the fishing rights.

The fishery is currently run on a semi-commercial basis where paying rods can access a classic Test beat to fish for brown trout (*Salmo trutta*), both stocked and wild, and grayling (*Thymallus thymallus*). Comments in this report are based on observations and discussions with Mr Richie on the day of the site visit.

Throughout the report, normal convention is followed with respect to bank identification i.e. banks are designated Left Bank (LB) or Right Bank (RB) whilst looking downstream.

## 2. Catchment overview

The River Test is nationally recognised as the quintessential chalk river and is designated for most of its length as a Site of Special Scientific Interest (SSSI).

The Test has a world-wide reputation for being a first class brown trout fishery. Much of the middle and lower river is heavily stocked with hatchery-derived trout to support a high level of angling activity. Where good quality habitats are maintained, the river has the capacity to produce abundant numbers of wild fish. A major bottleneck to enhanced wild trout production is thought to be through poor in-gravel egg survival. Comparatively small areas of nursery habitat for juvenile fish also restrict the development of wild stocks. Where good habitat does exist, survival rates of fry are usually very good in the food-rich environment.

Habitat quality on the Test varies enormously. The river channels are virtually all heavily modified, and originally constructed for milling or water meadow irrigation. Flow is rarely contained within a single channel and frequently flows are diverted via a plethora of channels, many of which are impounded (dammed) or perched (i.e. raised above the level of surrounding land), and controlled by a multitude of structures, weirs and hatches. This situation has

enabled many historical landscape features to be preserved and has also allowed many riparian habitats to benefit from raised water levels. It has, however, also resulted in poor and fragmented in-channel habitats for flow loving fish species such as trout and salmon (*Salmo salar*).

In the last 150 years, the character of the river has largely been moulded by management regimes designed to facilitate fly fishing for mainly farm-reared, stocked trout. Estimates vary for the economic value of the fishery but the river is undoubtedly an important economic resource for land owners and the local rural economy in general. Some of the middle beats of the river in particular are very intensively managed and fished. On some beats this has reduced the overall quality and diversity of in-channel and riparian habitats.

### **3. Fishery overview**

The Chilbolton fishery is a combination of main river beats and typical Test carrier. It is extremely rare to find the Test confined to within a single channel and the Chilbolton reach is no exception.

#### **3.1 Upper Main beat.**

First impressions of the upper main beat were that it supported some superb habitat for trout and wild fish in particular. Unfortunately the high quality habitat extended for only a short section adjacent to the bridge. Here the river was wide and shallow flowing over a clean gravel bed. The flow patterns generated within the channel were nicely kicked from side to side by the presence of several low scrubby willows (*Salix caprea*) that have been allowed to grow out into the channel. As a result, flow in central channel locations has been gently squeezed, resulting in slightly elevated water velocity, which in turn has provided a good environment for healthy beds of water crowfoot (*Ranunculus spp.*) to flourish.

It is understood that this particular section of the main Test is largely left unmanaged as a deterrent to unwanted guests and poachers. No attempts have been made to manage the marginal trees and the pockets of dense marginal cover, coupled with the shallow glide and riffle provide some of the best wild trout spawning and nursery habitat on the entire fishery. The gravels on the tail of the glides were comparatively flat and poorly sorted and were also likely to be compacted and stuck together; however, overall this section supports good trout habitat and has great potential for further enhancement.



A view from the access point near the bottom of beat1. Good quality trout habitat.

The bulk of the top main river beat (beat 1) was fairly typical of the middle Test, with a very wide channel and a flow pattern dominated by a steady 0.5-m deep glide. The bed material consisted of thin gravels, heavily infiltrated with soft sediments. The marginal fringe of emergent vegetation was adequate on the LB but patchy on the far RB, where the river bank has been partly incorporated into the garden of a riverside house.

### **3.2 Carrier**

Many of the side carriers on the Test were dug to facilitate water meadow irrigation. They often follow contours across the gradient of the valley and as a result have very little natural fall. This appears to be the case with the central carrier at Chilbolton, where a few short sections appear to support good quality in-channel habitat but other longer sections struggle to support habitat suitable for all trout life stages.

Riparian zone (bank-side) habitat was, by contrast, good, with the left (non fishing) bank providing a good thick fringe of marginal reed cover. This type of habitat is comparatively rare on many Test beats and is essential in providing refuges for the adult phase of many important river flies. When allowed to fold into the channel, the reed also provides a valuable fringe of cover for fish, which is especially important during low flow conditions, when in-channel weed growth is often thin.



Central carrier. Nice shaggy fringe with excellent beds of water crowfoot.

Some attempts to promote local bed scour appear to have been made through the introduction of a short flow deflector constructed from concrete bag work. The site chosen is below the root system of an ash tree and the structure has provide some variety in the bed topography.



Bag-work flow deflector packed under an overhanging ash tree.

Flow deflectors work extremely well on chalk rivers but it is important to use appropriate materials that add some biological value as well as being in keeping

with the chalk river environment. Sections of tree trunk are recommended for this purpose.

### 3.3 The Pub carrier and Manor Farm beat.

A short distance downstream, the carrier discharges into a further channel, the confluence of which forms the top of the "Pub beat" and the bottom of the Manor Farm beat.



The Pub beat. Great margins but in-channel habitat dominated by a long flat glide.

Only a comparatively short section of the Pub beat was walked. Marginal habitats were relatively luxurious by River Test standards and there were several good examples of low overhanging tree cover providing excellent lies for adult trout. In-channel habitat was predominately smooth laminar glide over a thin gravel and soft sediment bed. Some in-channel cover was provided by beds of water parsnip (*Berula* sp.) and fools cress (*Apium* sp.); however, significant amounts of filamentous algae were also present. The lack of any significant amount of water crowfoot is thought to be due to the comparatively low flow velocities within this particular channel.

Crossing a footbridge we walked up the LB of the Manor Farm beat. This particular beat appears to have changed significantly over recent years. The garden of the Manor Farm runs down to the river on this section and it is understood that there has been some conflict between providing access for angling and the desire of the residents for privacy. Alder and willow trees that in the past have been carefully managed are now left to grow unchecked. Access for fishing aside, it was evident that long stretches through the Manor Farm beat were devoid of in-channel weed growth and any significant cover for fish.

Shade is a very important component of trout habitat. The root systems of trees bind the banks together and provide superb holding spots for fish. Trees also

play an important role in providing a thermal refuge during long hot spells, even on groundwater-fed rivers like the Test. Trout respond best to a mix of dappled light and shade, with low overhanging cover particularly valuable and open sections where shafts of light help to stimulate weed growth and natural food production. Some sensitive tree work on this beat would help to stimulate more weed growth and therefore provide in-channel cover for trout and grayling.



Dappled light and shade near the bottom of the Manor Farm beat provides good trout habitat.



Shaded sections further upstream were comparatively devoid of in-channel cover for trout.

At the top of the beat the river discharges through a hatch. The hatch was probably constructed to control flow splits between the Manor Farm beat and the Wherwell Priory beat which runs parallel.



Home Farm hatch pool.



The impounded reach running upstream of the hatch pool.

One of the issues associated with control structures on the River Test and other chalk streams is that they often fragment fish populations and habitat. The short section of river immediately downstream of the hatch pool provides some high quality trout habitat, but the impounding effect of the weir has a disastrous effect on the section of river above the hatches. Any change to the flow regime at this location is problematic as the rights on the parallel channel are under different ownership. The ideal scenario would be to remove the hatches and reclaim the gradient by importing gravels so the bed can be gradually raised over a long section of channel, thus backing the water up sufficiently to provide flow for the Priory beat. Obtaining agreements for undertaking such a radical change is likely to be challenging.

Near the top of the beat the river is comparatively shallow. This should be an ideal spot for spawning trout, however the gravel quality appears to be very poor. A close inspection reveals that much of the bed material is heavily coated with calcium carbonate deposit. This cements the gravels together and severely restricts opportunities for successful spawning.



Shallow glides like this should provide spawning opportunities but gravel quality is very poor.

### **3.4 Butchers Mead beat**

The main river beat (Butchers Mead) is classic middle Test - double bank fishing to a wide flat glide. The fringe was of a reasonable height, perfectly fishable and providing some cover for the anglers, but was a little too thin to be valuable as a refuge for the adult phase of many river flies. On many Test beats the fringe is very closely trimmed to facilitate unimpeded access for casting and in the autumn often completely cut back to bank level. This is now considered by many to be a very damaging practice. Not only does a thick fringe of marginal chalk

stream plants protect the bank and provide refuge for insects, it is also valuable cover for fish if it is allowed to flop into the margins following the first frosts. Dead annual plants should be raked out of the margins in the spring just prior to the fishing season, when a light trim is also appropriate.



Angling bank at the top of the Butchers Mead beat. Coppicing some of the alder may help to stimulate weed growth.



Butchers Mead beat – double bank fishing over a glide habitat.

The Butchers Mead beat is characterised by a slow glide habitat. The reach has no habitat suitable for wild trout production and its ability to hold stocked fish

will be determined by the in-channel weed growth and how it is managed. Successful enhancement of in-channel habitat here is dependent on reaching an agreement with fishery interests on the opposite bank. Options could include tree trunk deflectors, the planting of low overhanging willows, or the creation of in-channel islands to break up flow patterns and provide more interesting and varied flow patterns and depth profiles.

## **5. Trout stocking**

Trout stocking was briefly discussed. The lack of any coordination or a stocking plan between all three parties could lead to excessively high densities of fish introduced to the river at the same time. At best, this practice will be wasting time and money, as it is highly likely that stock will quickly drop downstream looking for individual lies if the density is too high. At worst, the practice is damaging to hopes of building a larger wild component to the stock.

It is not known whether the trout introduced are mixed-sex, fertile stocks or all-female, sterile stocks (triploid). There is mounting evidence that interbreeding between domesticated farmed trout and wild fish can lead to lower fitness and survival amongst the offspring, reducing the numbers of river-bred fish in the population. Policies within the Environment Agency's National Trout & Grayling Strategy reflect this concern, and by 2015 all farmed trout stocked to rivers will be required to be sterile, all-female triploids, or derived from local broodstock.

## **6. Conclusions**

Habitat quality and therefore fishery performance is very mixed throughout the reach inspected. Overall the fishery lacks high quality spawning and nursery habitat, a common problem on long stretches of the Test.

This type of habitat can be created and identifying areas for improvement such as the top of the Common main beat, the main carrier and the top end of the S bends could be worth consideration for enhancement.

Where the channel shape is suitable for spawning, the gravel quality is very poor and would benefit from annual cleaning to reduce sediment loads. Large woody debris (LWD) deflectors could also be usefully deployed to help scour fresh gravels and provide improved environments for holding fish as well as spawning. These and other techniques designed to improve chalk stream habitat for trout are described in detail in the WTT Chalkstream Habitat Manual. This is available either on a CD from our office, or as a pdf download via the WTT website [www.wildtrout.org](http://www.wildtrout.org) (via Publications menu).

Overall the current maintenance regime does achieve some balance between providing habitats for fish and invertebrates, and facilitating access for angling. Achieving this balance is of fundamental importance. Providing some areas of refuge where trout might reside for considerable lengths of time before succumbing to the skills of the more accomplished anglers provides a much more varied and interesting fishery.

One area where perhaps the slightly more relaxed approach to maintenance might not be to the benefit of the river is with regard to tree management. When trees that sit back from the bank are all allowed to reach the same height then there can be issues associated with over shading. Coppicing out a short block here and there provides a better structure to the canopy and allows better light penetration. Conversely, increasing the amount of low level marginal cover by leaving low overhanging species such as willow, thorn or elder often provides improved holding and refuge from fish eating birds.



A large tree trunk deflector pegged into the Oakley Stream on the Test used to improve gravel quality for spawning.

The bottom Butchers Mead beat has great potential for enhancement. It will be difficult to make the improvements without an agreed plan that is acceptable to your opposite neighbours. Radically pinching the channel in key locations to promote a narrower, meandering planform, as well as the use of LWD flow deflectors to promote bed scour and kick up shallow gravel ramps will promote the diversity in habitat that this reach (like so many on the middle Test) currently lacks. This will benefit stocked trout as well as helping to intercept juvenile wild fish that drift downstream, making the fishery much more sustainable and interesting to fish.

## 6. Recommendations

- Meet with all the relevant fishery interests and discuss options for enhancement. This report might act as a catalyst for galvanising some support for coordinated actions designed to boost wild stocks and improve stocked trout fishing.
- If agreement can be reached, implement a programme of spawning gravel improvements. These can range from cleaning existing sites to creating new spawning and nursery sites, either through lowering impoundments to locally pull water through faster, or to import fresh gravels at strategic locations.
- Discuss options for improvements to tree management with all parties. Leaving all the trees to mature at the same rate is not considered best practice. Coppicing out short sections to promote multi-stooped trunks of alder or willow will help to promote the low level overhanging branches that are desirable as fish cover.
- Explore options with your neighbours for a radical improvement of the Butchers Mead beats. LWD flow deflectors, planting low overhanging willows and possibly installing central channel islands would greatly improve the fishery potential of this beat.
- All parties should seek support from the Environment Agency, Natural England, and the Test & Itchen Association as such a scheme would have much wider benefits for the ecology of the river and may well attract some external funding.
- Leave as much fallen woody material in the carriers as possible. If it falls in an undesirable location then move it and secure it.
- Attempt to coordinate your stocking activities with the opposite fisheries to avoid introducing excessive densities of fish. Any more than 2 adult trout per 100m<sup>2</sup> of channel is likely to result in downstream displacement.

**It is a legal requirement that some works to the river may require written Environment Agency consent prior to undertaking any works, either in-channel or within 8 metres of the bank. Any modifications to hard defences will require a land drainage consent on any river designated as "main river". Advice can be obtained from the EA's Development Control Officer.**

## **7. Making it happen**

There is the possibility that the WTT could help to start an enhancement project. We could potentially help to draw up a project proposal (PP) which could be used to support any application for Land Drainage Consent. The PP might also be used as a document to be shared with potential partners as a vehicle for raising project funding.

Alternatively, physical enhancement works could be kick-started with the assistance of a WTT 'Practical Visit' (PV). This approach is probably more appropriate for works to the side carriers. PVs typically comprise a 1-3 day visit where approved WTT 'Wet-Work' experts will complete a demonstration plot on the site to be restored. This will enable project leaders and teams to obtain on the ground training regarding the appropriate use of conservation techniques and materials, including Health & Safety, equipment and requirements. This will then give projects the strongest possible start leading to successful completion of aims and objectives.

The WTT can fund the cost of labour (two/ three man team) and materials (max £1800). Recipients will be expected to cover travel and accommodation expenses of the contractor.

There is currently a big demand for practical assistance and the WTT has to prioritise exactly where it can deploy its limited resources. The Trust is always available to provide free advice and help to clubs, syndicates and landowners through guidance and linking them up with others that have had experience in improving trout fisheries.

## **Acknowledgement**

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programmes.

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