



## River Test – Tufton



An advisory visit carried out by the Wild Trout Trust – April 2009

## 1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the River Test at Tufton near Whitchurch in Hampshire. The advisory visit was carried out at the request of the Hampshire Wildlife Trust. The Trust is looking at various options for enhancing local biodiversity and exploring possible habitat enhancement opportunities under Higher Level Stewardship agreements with the landowners.

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 trout (*Salmo trutta*) fishery. Much of the middle and lower river is heavily stocked with hatchery derived trout to support intense angling activity. Where good quality habitats are maintained the river has the capacity to produce viable numbers of wild fish. A major bottleneck to enhanced wild production is thought to be through poor in-gravel egg survival. Comparatively small areas of nursery habitat also restrict the development of wild stocks. Where decent habitats are found and preserved, survival rates of fry are usually superb due to rapid growth rates.

Habitat quality on the Test varies enormously. The river channels are virtually all heavily modified, artificial and originally constructed for power generation or water meadow irrigation. Throughout its length it is quite unusual to find all of the flow contained within a single channel and frequently flows are diverted via a plethora of channels, many of which are impounded or perched and controlled by a multitude of structures, weirs and hatches. This scenario has enabled many historical landscape features to be preserved and has also benefitted many riparian habitats via 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*). Attempts to balance the requirements of both in-channel and riparian habitat through the Water Level Management Plan process is on-going.

In the last one hundred years the character of the river has largely been moulded by the on-going fishery management regimes designed to facilitate fly fishing for mainly introduced 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 which has, on some beats, reduced the overall quality and diversity of in-channel and riparian habitats.

### **3. Fishery overview**

The fishery at Tufton comprises approximately two miles of river and carrier (Bye Carrier). Access for angling is restricted to one bank throughout the entire length of the fishery. The owners and the River Keeper (Mr Paul Moncaster) have instigated a sympathetic maintenance regime and have restricted marginal maintenance works on the non angling bank to a bare minimum and have carefully managed in-channel plants to maximise holding habitats for brown trout.

The Test at Tufton is stocked with hatchery derived trout but also enjoys a strong component of wild fish. This is largely due to some excellent spawning and nursery habitats, particularly on sections of the carrier and near the very top end of the fishery on the main channel.

### **4. Habitat assessment.**

The in-channel habitat can be broadly described in three units:

- The main river from just below the A34 road bridge down to the hatches
- The main river beat from the hatches down to the road bridge bordering Testbourne
- The Bye Carrier

#### **4.1 Main river top beat**

The top section of main river downstream of the A34 road bridge offers lots of potential for enhancement. The channel is far too wide in places for the given discharge and is predominantly made up of a long shallow glide. The gravel substrate within this section of channel appears to be of good quality and is reasonably well sorted due in the main to some careful weed management where a bar cutting technique is employed by the keeper. This has created some gentle diversity in channel depth.

The LB margin was predominately a managed bank for angling access and was comparatively hard and dry. One section adjacent to some private residences has been planted with a marginal strip of daffodils which although attractive is considered to be inappropriate for a chalkstream margin. The RB by contrast has been left largely unmanaged with some evidence of light pollarding and coppicing of willow to limit encroachment and allow some dappled light to penetrate into the margins. Several sections support rafts of low, scrubby cover which provide superb habitat for both juvenile and adult trout, depending on marginal depth and water velocities.

Two thirds of the way down the section there is a low downstream "V" weir which appears to have been constructed in an attempt to provide additional

water depth upstream, possibly to try and promote enhanced lies for trout. The bed upstream has regraded to some extent, negating any perceived benefits of increased water depth.



Bar cutting techniques and a superbly covered margin provide excellent habitat for trout.



The very wide and shallow channel and temporary mud engine





The low V weir where the bed has regraded upstream. Not an impediment to fish migration but a restriction on habitat development upstream. Note the presence of the red non-native plant *Azolla* in the foreground.



Some recent enhancement works designed to create better quality habitat.





Main river looking towards the railway viaduct – A wide shallow channel which would benefit from a more varied depth profile.



Main river below the viaduct where an island has been constructed. The upstream end of the island needs to be consolidated to protect the whole island from future washout

## 4.2 Top main river beat

The top main river beat provides a varied range of in-channel habitats. On this section the LB provides the bulk of the valuable marginal cover.

A large water level control structure with two undershot hatches sits approximately halfway along the beat. It is likely that this structure is critical in providing elevated water levels needed to maintain adjacent water meadows. If this facility is not required then it would be sensible to draw both hatches which will locally increase water velocities upstream and create better quality habitats for trout. Frequent manipulation of hatches will not allow the river to respond to changes in annual flow regimes and it is often better to keep them fully drawn for as long as possible.

Near the bottom boundary there is an old metal walkway with numerous support stantions that was used to gain access to an old weed rack. The walkway will collect cut weed and debris very easily and unless cleared on a frequent basis will impound the river and reduce water velocities locally upstream.



Middle hatch on the top main river beat with one gate drawn.





Excellent gradient on the main beat promotes good quality trout habitat



Old metal walkway and stantions near the bottom boundary can catch cut weed and impound water velocities on the main beat



### 4.3 Bye Carrier

The Bye carrier offers a substantial length of high quality chalk stream habitat. Again marginal habitats on one bank (this time the RB) are managed in a sensitive way to maximize biodiversity and provide cover for trout.

Near the top end of the carrier where it runs perpendicular to the valley some pollarding of marginal willows has taken place to provide a clear flight path for migrating birds. This is a good example of the overall sensitive manner in which the fishery is currently managed.



Pollarded willows where the carrier sweeps across the valley floor

As the carrier swings round towards the margin of the water meadow, a network of valuable marginal habitats on the RB is revealed. These include some connected backwaters which provide critically important habitat for a range of species including eel (*Anguilla anguilla*) and lamprey (*Lampetra sp*). There were also good examples of habitat management with fallen tree bridges providing access for mammals and some large woody debris (LWD) tethered to the margin. LWD plays a vital role in providing habitat for invertebrates. When pegged down it can also act a valuable flow deflector, scouring lies for trout and throwing up fresh gravels for spawning.



A connected backwater on the RB – Superb habitat for a range of different species



A piece of LWD tethered to the bank. The perfect “fly-board” and cover for juvenile trout

Further downstream there are two old water level control structures. These radically pinch the channel, slow upstream velocities and potentially collect large



rafts of floating weed and debris. On the downstream structure it might be possible to cut a new channel adjacent to the old weir which will preserve the historical nature of the hatches but will radically improve habitat and require far less maintenance.



Old water level control hatch – Is it really needed?



Bottom hatch which lends itself to being bypassed with a cut-through channel

At one or two locations some structures have been installed in an attempt to enhance trout habitat. Full channel width weirs tend to create a few metres of decent habitat at the expense of long sections upstream of the structure. A much better option to promote local scour and enhance holding pools, as well as improving spawning substrate, is to peg in short sections of LWD. This can either be used parallel to the flow or pegged in at slightly upstream angles when used as a half weir



A small weir which looks to have been installed for fishery purposes. A half weir created by pegging in a tree trunk would be a better option



An example of a piece of LWD used to promote local scour on a riffle and promote enhanced spawning habitat



At the very bottom boundary the river flows beneath the road bridge adjacent to the Testbourne estate. The right-hand arch does appear to be smaller than the left and reduced flows through this arch may well have resulted in some accretion of sediments and fine gravels. Lowering the bed level through this right hand arch down to the original invert will help to pull water through the carrier and increase velocities and promote better quality habitat.



Road bridge at the bottom boundary. Lowering the bed level beneath the right hand arch should promote increased velocities in the bottom of the carrier

## 5. Conclusions

In many ways the main river and carrier at Tufton represent one of the better reaches of the River Test. The River Keeper has managed the non fishing bank in a sensitive manner and the fishery contains a strong stock of wild fish. Further improvements to both in-channel and marginal habitat would further enhance the overall quality of the river and the riparian zone and potentially make the fishery less reliant on stocking.

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. Recent changes to 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.

More information on this subject can be found at:  
<http://www.environment-agency.gov.uk/subjects/fish/165773/1791055/1800027/>

## **6.0 Recommendations**

The key areas to focus further improvements on are:

- To consider the partial lowering of the weir on the top main beat and undertake some radical narrowing on selected sections of the existing channel
- On other sections of main river use pegged down LWD to promote local bed scour, improving both holding and spawning potential
- Remove the old metal walkway on the bottom main river beat and keep the centre undershot sluices drawn for as long as possible
- Plant the odd overhanging goat willow on some of the more open sections of fishing bank
- Discourage the planting of daffodil bulbs and encourage a regime of local native plants
- On the carrier reconfigure the low weir or replace with a tree trunk half weir
- Consider the removal or bypass of one or both of the water level control structures on the Bye Carrier
- Consider an early move to using sterile stock fish

**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 Development Control Officer.**

## **6. Recommendations**

### **Acknowledgement**

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

### **Disclaimer**



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