



## **River Meon at Manor Farm, Exton**



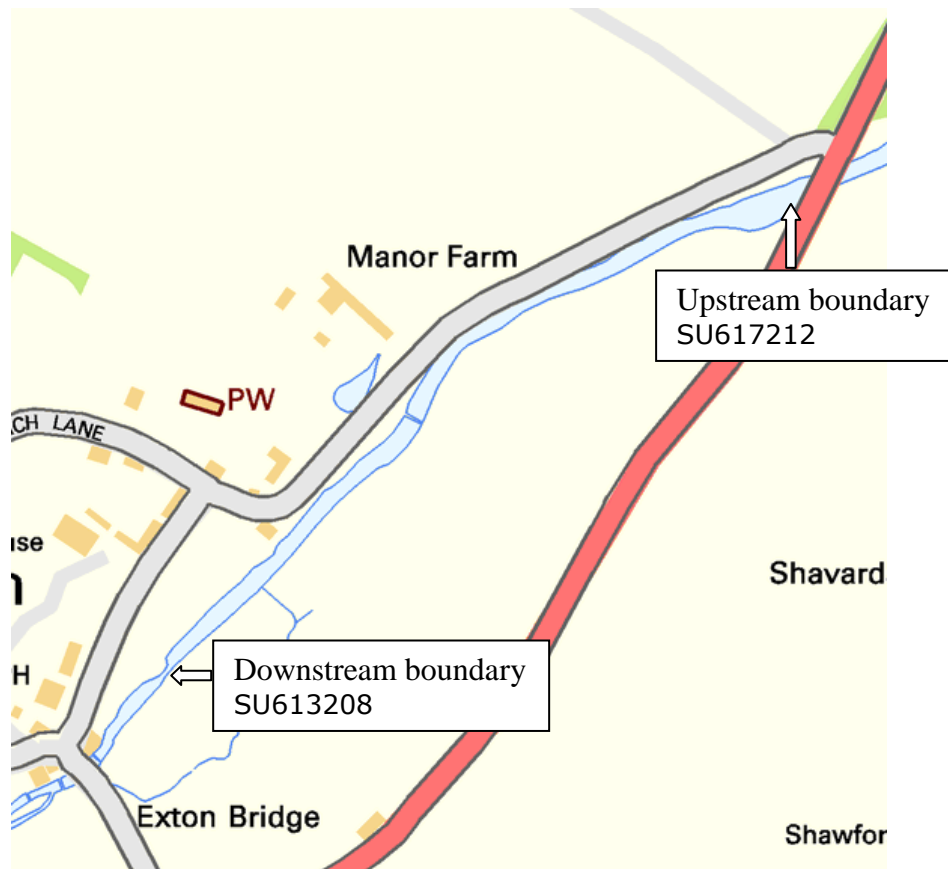
**An advisory visit carried out by the Wild Trout Trust – May 2012**

## 1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on a 0.5-km stretch of the River Meon at Manor Farm, Exton, Hampshire. The river is managed by Mr. Simon Martin and is occasionally let for paying day rods via an agent.

The request for the visit was made by Mr. Martin, who is keen to explore options for managing the river. Comments in this report are based on observations on the day of the site visit and discussions with Mr. Martin.

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.



River Meon, Manor Farm

## 2. Catchment overview

The River Meon rises from the Hampshire chalk aquifer near the village of East Meon and flows south for approximately 37km before entering the sea at Hill Head. The river enjoys a steep gradient for a chalk river, falling approximately 120m from source to sea. The middle and upper reaches of the river flow over deposits of Lower Chalk, which is less permeable than the Upper Chalk geology predominantly found in the rest of East Hampshire. As a result, the Meon tends to have a greater flow range compared to other southern chalk streams.

At Exton (the location of this visit) the river is flowing over chalk, but further downstream (near Soberton) there is a significant change in geology to deposited material, principally London Clay and Reading Sand. These deposits dominate the Meon catchment south of Soberton Heath until the river enters the sea at Titchfield Haven.

For much of its length, the river displays the classic chalk stream characteristics of clear water, low soft margins and an abundance of in-channel macrophytes dominated by water crowfoot (*Ranunculus* spp.), starwort (*Callitriche* spp.) and water moss (*Fontinalis antipyretica*). As with most chalk rivers, the channel is heavily modified and in-channel habitats are heavily influenced by the numerous structures and milling impoundments found throughout its length.

Fishery surveys of the Meon conducted by the Environment Agency (EA) have concluded that the river is "a productive brown trout river". The Meon is also noted for a strong run of sea trout although they are rarely targeted by anglers on this system. Sea trout are known to run upstream of Droxford during wet years and the EA have plans to improve access for migratory fish by improving existing fish passes on the lower river. The river also supports a range of coarse fish, eel and strong populations of brook lamprey and bullhead, both of which are designated as species of conservational importance under the EU Habitats Directive.

The Meon (Waterbody ID 107042016640) has been assessed as being in 'Good Ecological Condition' under the Water Framework Directive (WFD) although the river is known to be both over abstracted and over licensed for abstraction under the EA's own Catchment Abstraction Management Plan.

. Meon		
		<a href="#">View data</a>
<b>Waterbody ID</b>	GB107042016640	
<b>Waterbody Name</b>	R. Meon	
<b>Management Catchment</b>	East Hampshire	
<b>River Basin District</b>	South East	
<b>Typology Description</b>	Low, Medium, Calcareous	
<b>Hydromorphological Status</b>	Not Designated A/HMWB	
<b>Current Ecological Quality</b>	Good Status	
<b>Current Chemical Quality</b>	Good	
<b>2015 Predicted Ecological Quality</b>	Good Status	
<b>2015 Predicted Chemical Quality</b>	Good	
<b>Overall Risk</b>	At Risk	
<b>Protected Area</b>	Yes	
<b>Number of Measures Listed (waterbody level only)</b>	1	

#### Summary of WFD information for the River Meon

### 3. Fishery overview

This section of River Meon at Manor Farm has been owned by the Martin family for many years. The beat consists of approximately 500m of double bank running downstream from the A32 road bridge towards the village of Exton. There is a short section of single LB at the bottom of the beat where the river is impounded by a weir structure.

The river has been used by family and friends for fly fishing for wild brown trout *Salmo trutta* and has not been stocked, or heavily fished. Recently some occasional day rods have been let to wild trout enthusiasts, via Fishing Breaks Ltd <http://www.fishingbreaks.co.uk/chalkstream/meon.htm>

Fishing is usually undertaken by wading, negating any requirements for intensive river bank maintenance, for which Mr. Martin has retained the control.

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

This assessment describes the habitat starting at the bottom of the reach and moving upstream.

Like many sections of chalk stream, the river channel at Manor Farm is man-made and heavily modified. The channel is perched above the adjacent flood plain, which lies predominantly to the south and east of the river, with the northern bank running parallel with the minor road to the village of Exton. Near the bottom boundary, the river is held up by a hatch structure (photo 1). It is not clear what the purpose of the hatch structure served but it is likely that it was originally constructed either as a milling impoundment, or to raise a head of water for drowning adjacent meadows to promote early grass growth.



Photo 1. Hatch structure just below the Manor Farm bottom boundary





Photo 2. Impounded reach lying just above the hatch structure in Exton.

Habitat quality in the reach immediately above the structure is severely impacted (Photo 2). The channel is wide, slow flowing and has significant quantities of deposited fine sediment. It is presumed that the channel here has been dredged in the past. There is evidence that the channel is responding to the low water velocity and sedimentation as marginal emergent plants are becoming established (mainly burr reed and flag iris). Where this is happening, the channel is being squeezed, promoting faster flows and creating some reasonable holding water for adult trout adjacent to the LB.

The structure itself looks to be a significant block for upstream fish migration. This structure has been highlighted in a report (commissioned by the Environment Agency and written by Dr. David Solomon) to review fish migration issues on the River Meon. It is understood that there are no immediate plans to improve fish access at this site. The structure is above the reach normally associated with sea trout spawning and this may have reduced the priority for mitigation work. It is unlikely to be a complete block for sea trout migration as occasional fish have been seen spawning above this structure. It will, however, delay free migration of even large sea trout in a low flow year, and will be a complete block to smaller salmonids, both resident brown trout, and small sea trout.

Improving access for fish migration at this site would be worthwhile and would provide an opportunity to enhance up-stream in-channel habitat if combined with a reduction in the height of the structure. Reducing the head-loss at the structure would substantially increase velocity upstream, and result in a rapid

natural recovery of this section to one which would be more sustainable and ecologically more valuable. Local trout populations would certainly benefit from improved habitat and free access.

Fortunately the comparatively steep gradient found on this section of the Meon has reduced the extent of the impounding influence of the structure. The majority of the Manor Farm beat above enjoys good quality chalk stream habitat, with the river flowing briskly over a clean gravel bed. The steep gradient and energetic flows have moulded some high quality habitat for all trout life stages, with good examples of habitat suitable for adult holding and spawning, as well as some excellent shallow riffle sections ideal for fry and parr.

Unusually for a Hampshire chalk stream, the river bed is quite varied in shape with lots of examples of humps and hollows and numerous sites that are suitable for trout spawning. The relaxed approach to channel maintenance has certainly helped, along with previous efforts to encourage local bed scour using woody debris deflectors. Some of the variations in bed topography are likely to be the result of previous trout spawning activities. This beat is known to support good numbers of wild trout and this is largely due to the above average condition and availability of high quality habitat (photo 3).



Photo 3 A typical section of the Manor Farm Beat.

At the time of the visit, cress was growing strongly into the channel from the margins, locally pinching the channel and providing excellent fry cover. The



accelerated flows mid-channel also provide a quality environment, with luxuriant beds of water crowfoot providing a superb habitat for invertebrates and fish. This high quality environment is further enhanced by a 'scruffy' margin on the RB, which has trails of vegetation into the river margins, again providing good cover for fry where the water is shallow. This state of equilibrium is very much dependant on a number of factors including prevailing flow, light penetration and the relationship between the marginal cress growth and the central channel water crowfoot (photo 4).

Maintaining the balance between these plant communities is an area of concern for Mr. Martin and he is well aware of the relationship between the various plants and the underlying flow and climate conditions that drive them. Maintaining this fine balance on a perched channel with low banks is problematic. Too much crowfoot growth in a wet year and the levels will rise, potentially threatening the vulnerable banks with breaching. In a low flow winter, when the cress dies back following hard frosts, the channel can become much too wide with flow velocities dropping away along with central channel crowfoot growth. The net result is a wide and comparatively bare channel that is a hostile environment for trout. Finding a suitable maintenance regime that keeps the channel in good condition over a wide range of flow conditions is a priority for this fishery.



Photo 4. Thick beds of marginal cress squeezing the channel and maintaining good central channel habitat.



One way of supporting this vulnerable balance is to install some large woody debris (LWD) tree trunks, or long thick branches and peg them into the cress beds to provide perpendicular groynes to the river channel. These LWD groynes should be sufficiently high so that over topping only occurs when the river is very high (virtually out of bank). This will ensure that they function as a support structure for marginal plants, rather than acting as a weir, or scouring structure. Some bed scour will occur off the outside edge of the structures, and this will enhance the reach and provide good holding habitat for adult trout.

Following heavy frosts, when the cress dies back, the LWD groynes will help to maintain vigorous flow velocities in central channel areas, thus maintaining the crowfoot growth even in a dry year. Following a wet winter, crowfoot will need to be manually cut to maintain habitat quality. Bar-cutting techniques can be used to hold up water levels if required, or cutting longitudinal channels will drop levels and promote runs between weed beds. This work can be undertaken to relieve pressure on vulnerable margins. Unfortunately with chalkstreams there is rarely a "do nothing" option.

A consequence of introducing LWD groynes might be some subtle changes in the marginal plant communities. Cress thrives in areas where there is a slow percolation of water over a firm gravel bed in shallow margins. The groynes will most likely restrict the percolating flow and encourage the local settlement of soft sediments. The sediment could promote other marginal emergent plants such as reed and sedge. More diversity in the marginal plant species may help to slow down the "boom and bust" scenario where either too much cress, or too much crowfoot leads to loss of in-channel habitat and maintenance issues associated with bank erosion.



Photo 5. Vulnerable marginal plants could be supported with LWD groynes or brash bundles.

Tree management was discussed. Currently the LB is largely devoid of tree cover and shading, with the RB providing lots of valuable cover. As tree cover is largely restricted to the north bank, the channel receives a lot of direct sunlight. This helps to support in-channel weed growth, with valuable patches of shade down the RB margin. No radical change to the current management regime is required.

## **5. Conclusions**

The Manor Farm beat of the river Meon supports some first class habitat for wild brown trout. Maintaining the subtle balance between plant communities which are responsible for fine tuning in-channel habitat is crucial. Experimenting with two or three support structures pegged into the margins is well worth consideration.

Boosting spawning success is not needed and would possibly be undesirable. The reach already holds high densities of trout and perhaps the development of the odd holding pool, at the expense of spawning and nursery habitat, might improve the quality of the fishery. This is a very rare scenario on most chalk rivers and is advice rarely given by the Wild Trout Trust. Slightly deeper holding pools could be developed by installing a LWD flow deflector, or by hinging in the occasional marginal tree from the RB to promote local bed scour. Care must be taken to ensure that erosive flows are not forced towards vulnerable river banks and that any flow deflector is well keyed into the river bank.

Exploring options for lowering the bottom hatch impoundment are worth exploring. Help and support for improving habitat and fish passage might attract funding from external sources. It is recommended that an approach to the Environment Agency is made to discuss options for improvement. The WTT is also available to provide support and advice if a potential project is deemed desirable.

## **6. Recommendations**

- Maintain an appropriate channel width through active management of the marginal and in-channel plants.
- The installation of woody support structures may help to support in-channel habitat in low flow years. Details on how to install these structures are available in the WTT's chalkstream habitat manual (CD) or can be downloaded as PDF documents from the WTT website (<http://www.wildtrout.org/content/wtt-publications>)
- Hand cutting the water crowfoot may be required following a wet winter to maintain high quality habitat and reduce the risks of the channel becoming over wide.
- Consider the use of some flow deflectors to promote slightly deeper holding water for adult trout.

- Explore options for lowering the impoundment near to the bottom boundary.

**It is a legal requirement that some works to the river may require written Environment Agency consent prior to undertaking those 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. PV's 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.

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.

### **Disclaimer**

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