



**Sweatfords Water, Rockbourne Trout Fishery,
Rockbourne, Hampshire**



An Advisory Visit report by the Wild Trout Trust, August 2014

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Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the Sweatsford Water (National Grid Reference: SU 13104 16242 to SU 13452 15881) at Rockbourne Trout Fishery, near Fordingbridge, Hampshire in August 2014. The visit was requested by Mr. Simeon Osborn who is the Fishery Manager and primarily focussed on assessing the river and identifying options to improve habitat for wild trout (*Salmo trutta*).

Comments in this report are based on observations on the day of the site visit, and discussions with Mr. Osborn and James Allen of the Environment Agency.

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



Figure 1: A map showing the location of Rockbourne Trout Fishery

Catchment and Fishery Overview

Sweatfords Water is a small chalkstream tributary of the Hampshire Avon. The Avon is one of the finest examples of river ecosystems in Britain and is designated as both a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC) under the EU Habitats Directive. These designations indicate the importance of the river and its tributaries within Britain and Europe respectively. Although Sweatford's Water is not designated as either a SSSI or SAC directly, it remains important as a part of the wider Hampshire Avon system.

Sweatfords Water rises out of chalk measures at Sagles Spring and drains down a small valley and through the village of Rockbourne. The village gets its name from the old name for the river, Rochesburna, which is listed in the Domesday Book and means 'a stony stream'. At the downstream extent of the village the river flows alongside Rockbourne Trout fishery where it is impounded to hold up a head of water to feed the fishing lakes and stew ponds. Approximately 3 kilometres downstream of the fishery the stream confluences with the Avon at Fordingbridge.

Sweatfords Water (Waterbody ID: GB108043015810) is categorised as being in 'good' ecological status under the Water Framework Directive. Water quality and biological indicators are mostly categorised as 'High' except for morphology which is categorised as 'good'.

Table 1: Water Framework Directive Information for Sweatford Water (Environment Agency)

Site details	
Waterbody Name	SWEATFORDS WATER
Waterbody ID	GB108043015810
Management Catchment	Hampshire Avon
River Basin District	South West
Current Ecological Quality	Good Status
Biological Quality:	
OVERALL BIOLOGICAL QUALITY	High
Macro-invertebrates	High
General Physico Chemical Quality:	
OVERALL PHYSICO CHEMICAL QUALITY	High
Ammonia	High
Dissolved Oxygen	High
pH	High
Phosphate	High
Hydro Morphological Quality:	
OVERALL HYDRO MORPHOLOGICAL QUALITY	Not High
Hydrology	Not High
Morphology	Good
Specific Pollutants Quality:	
OVERALL SPECIFIC POLLUTANTS QUALITY	High
Ammonia	High
Copper	High
Zinc	High

Habitat Assessment

For the purposes of this report, each river visited is described from the upstream extent of the water visited, to the downstream extent.

At the upstream extent of the water visited the river is impounded and over-shaded. The impoundment of the river causes flows to be laminar and sluggish, resulting in increased sedimentation and habitat uniformity. However, this is mitigated to a certain extent by the sinuosity of the river and by occasional woody debris features that introduce diversity both in terms of flow patterns and

physical habitat. Sedimentation is excessive and much of the bed is smothered by a thick layer of fine, sandy silt. The accumulation of fine sediment is a symptom of the natural flow of the river being impeded by a weir downstream. The slowing of the river allows fine particles to drop out of suspension and settle. Where this happens uniformly across the bed, habitat diversity is reduced as the sediment evens out depth conditions (Figure 2).



Figure 2: A thick deposit of fine sandy sediment smothers the bed

Despite the sluggish flow some sections of the bed in the impounded reach were relatively clear. This may be in part due to prolonged periods of scouring flow over the extremely wet winter but the main factor effecting scour is the presence of natural features such as tree roots extending out into the channel that pinch the channel and deflect flow (Figure 3).

Although dense tree cover casts uniform shade over the river, marginal plants seem to be thriving. In the river, aquatic plants are present but their diversity and proliferation is impaired by a lack of direct sunlight (Figure 4) and sluggish flow. Water parsnip (*Berula erecta*) was observed in several places but other prominent chalk stream plants such as water crowfoot (*Ranunculus* spp.) and starwort (*Callitriche* spp.) were absent.



Figure 3: Tree roots extending into the channel help to scour the bed clear of fine sediment

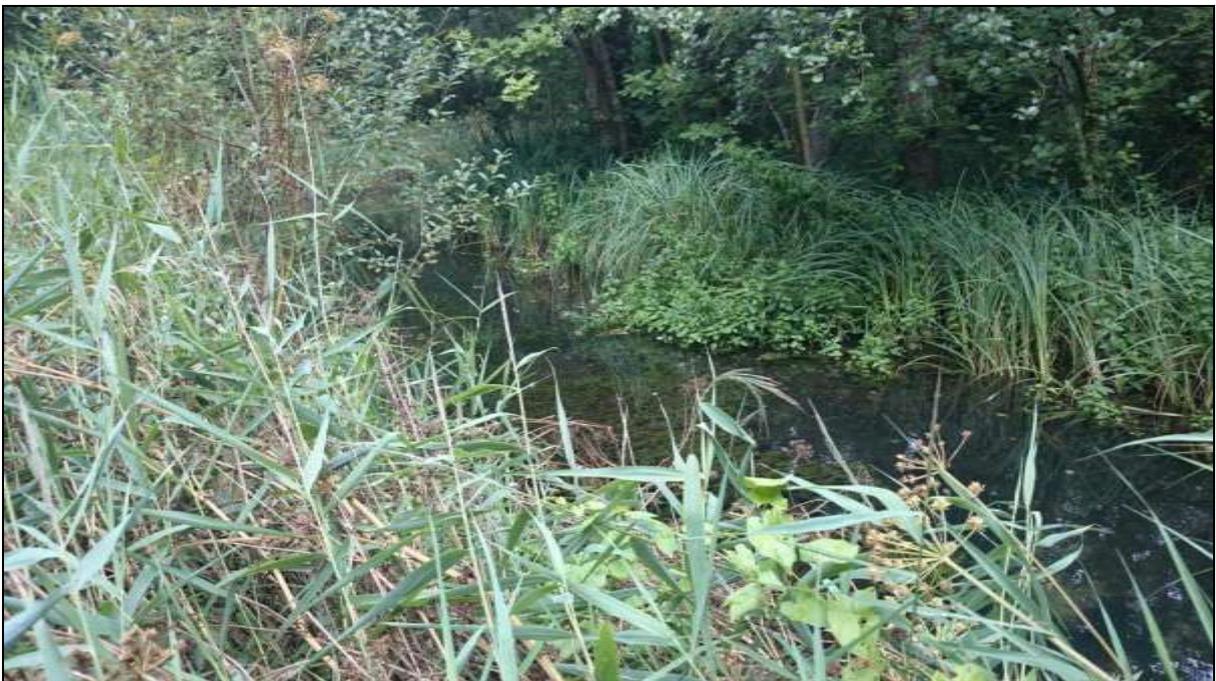


Figure 4: Heavy shade and sluggish flow limits submerged aquatic plants to mostly lesser water parsnip

Tree works to introduce more direct sunlight into the river would benefit in-stream primary production as well as giving rise to woody material that could be used to create a variety of habitat features.

At SU 13177 16149, the river flows under a low bridge. The footings of the bridge have been protected by a make-shift revetment consisting of submerged steel barrels back-filled with gravel (Figure 5). Whilst the revetment is not

necessarily damaging to the river, it has very little ecological value and aesthetically detracts from the natural beauty of the fishery.



Figure 5: A revetment of submerged steel barrels has little habitat value and detracts from the river's natural beauty

At SU 13188 16103, the river is impounded by a stoplog weir to hold up a head of water for the fishery stew ponds (Figure 6). The structure is impacting habitat quality throughout the whole of the reach upstream and is a barrier to fish passage.



Figure 6: The stoplog weir at SU 13188 16103 is a barrier to fish passage

In terms of natural river function and habitat quality and connectivity, the ideal scenario for the river would be for the structure to be completely removed. However, as the structure is vital to the present functioning of the stillwater fishery, this option is not feasible in the short-medium term. However, fish passage over the structure could be improved by the installation of a low-cost easement.

Above the impoundment the channel splits and a portion of flow is diverted to the stew ponds. Some brushwood channel narrowing has been attempted but unfortunately the bankside tree cover has prevented sufficient light conditions on the river and marginal plants have failed to colonise (Figure 7). More light needs to be let into the channel and further material may need to be installed to replace the decomposed brushwood.



Figure 7: Brushwood channel narrowing has failed to colonise under the heavy shade

Downstream of the stew ponds the river flowed more freely and was characterised by a cleaner gravel bed where accumulations of fine sediment were mostly confined to the margins. Compared to a previous WTT advisory visit in 2008 (<http://www.wildtrout.org/sites/default/files/private/SweatfordsWater2008.pdf>), emergent and marginal plants were abundant and diverse, indicating a much less intensive management regime. This 'shaggy' margin provides excellent refuge habitat for juvenile trout and other small fish and also provides food and

habitat for a range of invertebrates, birds and small mammals (Figure 8). However, in some places marginal plants have encroached across the channel (probably during a period of lower flow) and will require some maintenance in order to sustain a free-flowing channel (Figure 9). Crowns of water crowfoot were present but sparse and lesser water parsnip remained the dominant aquatic plant.



Figure 8: Downstream of the stew ponds, the river is shallower and fine sediment is confined to the river margins

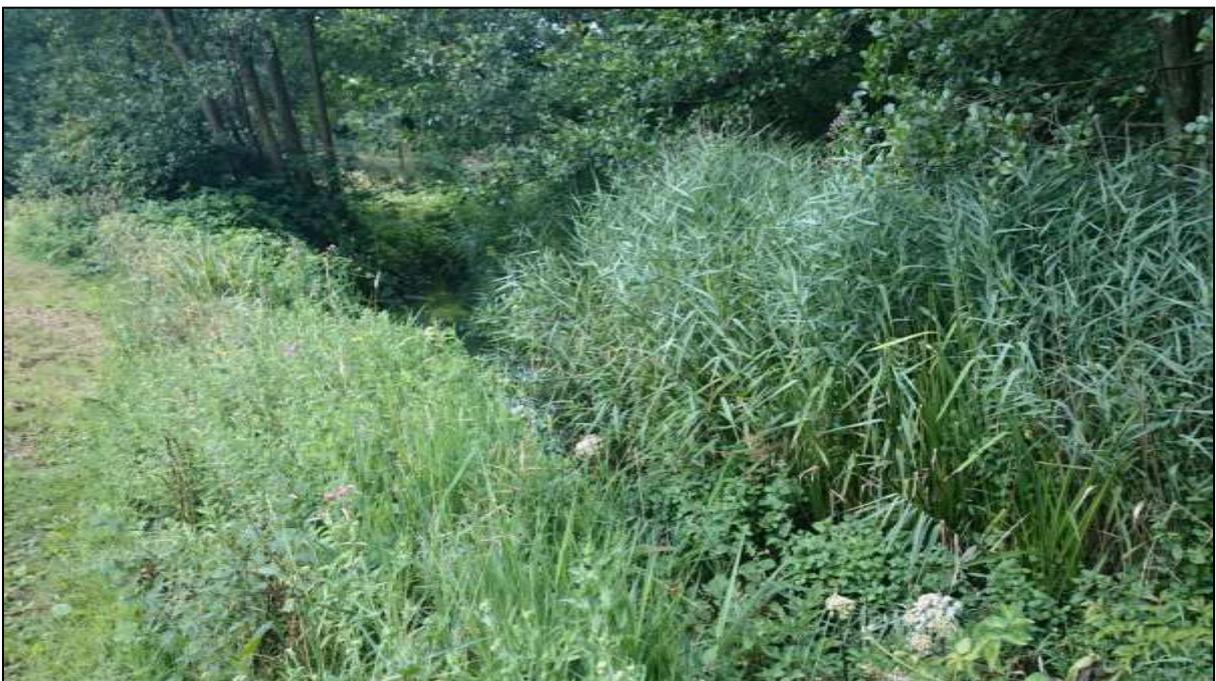


Figure 9: Marginal plants in some places have encroached across the channel and some light maintenance might be required.

At SU 13287 15961, a small weir diverts flow into one of the nearby ponds. Although interrupting sediment transport, the weir has a minimal impounding effect and is probably passable for trout under most flow conditions.



Figure 10: The small weir at SU 13287 15961 interrupts natural morphology but is not a barrier to trout migration

Downstream of the weir the natural sinuosity of the river helps to maintain a relatively good level of physical diversity. However, through some deeper and wider sections of the stream, where flows are slower, sedimentation is a problem and the introduction of more in-channel flow deflection would be beneficial (Figure 11). Furthermore, despite the installation of some marginal brushwood (Figure 12), the dense tree cover continues to inhibit marginal plant growth.

At the downstream extent of the reach visited, flow is impounded by a stoplog weir (Figure 13). The weir was impassable for trout under the flow conditions observed on the day of the visit and would be impassable under all but the highest flows. Downstream of the weir natural stream morphology resumes and habitat quality is good. Reconnecting the river through Rockbourne Trout Fishery with the resident trout population downstream would significantly improve trout recruitment, especially if undertaken in conjunction with habitat improvements. The purpose of this structure was unclear and it may be that it could be removed without impacting the operation of the stillwater fishery.



Figure 11: Sedimentation is a problem in some of the deeper and wider sections of the river



Figure 12: Heavy shade on the Left Bank has hindered colonisation of some of some brushwood habitat enhancements installed in the margin.



Figure 13: The stoplog at the downstream extent of the reach visited is a barrier to fish passage and does not appear to provide any useful function.

Conclusions:

At present, Sweatfords Water at Rockbourne Trout Fishery is not representative of the river's 'Good' ecological quality classification under WFD. However, the reach has great potential as a wild trout habitat providing the following issues are addressed:

- The river above the stew ponds is heavily impounded and natural river morphology is significantly impeded.
- Throughout the reach visited, over-shading from dense bankside tree cover is a limiting factor on marginal and in-stream diversity and productivity.
- Gravel is poorly sorted and compacted with fine sediment.
- Flow diversity could be improved throughout the length of the fishery.

Recommendations

In order for the Sweatfords Water through Rockbourne Trout Fishery to achieve its full potential as a good quality habitat for wild trout and other flow-loving fish, the following actions are recommended:

1. Trial lifting out of the stoplog at the downstream extent of the fishery and providing no detrimental effects, such as excessive erosion or a drop in pond water level are observed, permanent removal of the structure.
2. Improve fish passage over the weir upstream of the stew ponds by fixing timber baulks to the weir sill and cutting a notch in the stoplog (Figure 14). It may also be worthwhile installing a pre barrage immediately downstream of the weir to help spread the head loss over a greater distance.



Figure 14: An illustration of how a notch and timber baulk fish passage easement could be installed on the weir

3. Replace the barrel revetment at SU 13177 16149 (Figure 5) with a more natural and aesthetically appropriate alternative such as stacked logs or brushwood faggot bundles.
4. Introduce a greater diversity of light conditions by implementing a 5-10 year rotation of tree works. Natural England recommends a roughly 70:30 ratio of direct sunlight to dappled shade for chalkstreams. This ratio

should provide sufficient energy into the river to ensure that an appropriate level of in-stream productivity is maintained whilst preserving the temperature-regulating effects of shade. Whilst it is important to allow more light into the river, it is equally as important to retain low-lying branches to provide overhead cover for fish.

(<http://www.wildtrout.org/content/how-videos#tree>)

5. Capitalise on the abundance of bankside trees and introduce further flow diversity and cover habitat by hinging occasional bankside trees into the river downstream and fixing them to the river bed with fencing stakes (ideally untreated sweet chestnut) and galvanised wire.



Figure 15: An example of 'hinging' a bankside tree downstream to provide cover habitat and flow deflection

6. Make use of trunks and thick limbs arising from tree works to create cover and refuge habitat features that also introduce a greater diversity of flow conditions. Focusing flows to scour the gravel bed will help sort the gravel and improve the quality of potential spawning habitat. Also make use of branches and other brushwood arising from the tree works to create some marginal brushwood shelves to trap fine sediment and provide a substrate for marginal plants. These should be positioned in direct sunlight in areas of natural deposition such as the inside of bends in the river.



Figure 16: An example of a woody debris flow deflector installed to introduce some cover habitat and flow deflection.



Figure 17: An example of a brushwood shelf installed in on the River Gade. This structure was left to be naturally colonised by emergent plant species.



Figure 18: One year later. The structure has been naturally colonised by reed sweet-grass (*Glyceria maxima*).

Estimated Bill of Quantities

Description	Quantity	Cost (£)
Weir	4 oak sleepers @£50.00 each Threaded bar @ £30.00 Chemi-fix resin @ £40 Other sundries £30	£300.00
Tree works	Estimated 4 days work @£400 p/day	£1600.00
LWD/CWD structures	Estimated 250 6ft sweet chestnut posts @1.60 each, Other sundries £100	£500.00
Labour	Estimated 15 man-days	Volunteers
Supervision	Estimated 5 days @ £250 per day (WTT)	£1250.00
Project Management	Estimated 3 days @ 250 per day (WTT)	£750
Total Budget Cost		£4400.00

Making it Happen

The creation of any structures within the river or with 8m either side will require formal Flood Defence Consent (FDC) from the EA. An FDC application will have to be submitted to the EA, usually along with a methodology and drawings detailing the proposed works. This enables the EA to assess possible flood risk, and also any possible ecological impacts. Contacting the EA early and informally discussing any proposed works is recommended as a means of efficiently processing an FDC application.

The WTT website library has a wide range of free materials in video and PDF format on habitat management and improvement:

<http://www.wildtrout.org/content/index>

The Wild Trout Trust has also produced a 70 minute DVD called 'Rivers: Working for Wild Trout' which graphically illustrates the challenges of managing river habitat for wild trout, with examples of good and poor habitat and practical demonstrations of habitat improvement. Additional sections of film cover key topics in greater depth, such as woody debris, enhancing fish stocks and managing invasive species.

The DVD is available to buy for £10.00 from our website shop <http://www.wildtrout.org/product/rivers-working-wild-trout-dvd-0> or by calling the WTT office on 02392 570985.

There is also the possibility that the WTT could help via a Practical Visit (PV). PV's typically comprise a 1-3 day visit where WTT Conservation Officers will complete a demonstration plot on the site to be restored.

This enables recipients 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 (if required) expenses of the WTT attendees.

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 organisations and landowners through guidance and linking them up with others that have had experience in improving river habitat.

Rockbourne Trout Fishery would also make an ideal location to host a 'River Habitat Workshop'. This would involve the WTT giving hands-on training to fishing clubs and members of the public attending the workshops. This would benefit the fishery as each workshop would deliver a number of habitat enhancements that would ultimately lead to improved fishing.

Disclaimer

This report is produced for guidance; 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 guidance made in this report.