



Salisbury Avon – Chisenbury Syndicate



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

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on waters controlled by the Chisenbury Syndicate (CS) on the upper Avon near East Chisenbury in Wiltshire. The club has access to approximately 2.5 miles of single and double bank fishing from NGR SU 135 543 to SU140 518. The reach is identified in the Environment Agency River Basin District Plan as ID number GB108043022350.

The request for the visit was made by Mr. Roger Elliott, who is a serving committee member. Comments in this report are based on observations on the day of the site visit and discussions with Mr. Elliott, Peter Nash, David Polding, and Hugh Lancaster, all from the Chisenbury Syndicate.

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.



The Chisenbury syndicate fishery

2. Catchment overview

The Avon rises in Wiltshire east of Devizes draining the Vale of Pewsey. From here it cuts through the chalk scarp at Upavon, flowing southwards across Salisbury Plain through Durrington, Amesbury and Salisbury. To the south of Salisbury it enters the Hampshire Basin, flowing along the western edge of the New Forest through Fordingbridge and Ringwood, meeting up with the river Stour at Christchurch, to flow into Christchurch Harbour at Mudeford. All the significant tributaries of the Avon including the Nadder, Wylye, Bourne and Ebble converge within a short distance around Salisbury.

The Avon enjoys the highest level of nature conservation protection being designated as a Special Area of Conservation (SAC) under the European Habitats Directive. A number of habitats and key species, including Atlantic salmon (*Salmo salar*) are cited as being key features of interest of the SAC.

3. Fishery overview

The CS controls approximately 2.5 miles of single and double bank fishing on the River Avon, straddling the village of East Chisenbury in Wiltshire. The syndicate is run not-for-profit along traditional fishing club lines for the benefit of the membership (25-30 rods).

The fishery is managed as a fly fishery for both wild and stocked brown trout (*Salmo trutta*) with a handful of rods also enjoying winter grayling fishing. Currently the CS introduces approximately 800 triploid brown trout between 500-900gms (1-2lbs) in weight in several batches. The club has worked hard to improve the wild component of the stock and have benefitted from some significant habitat enhancement work, financed in part via the Avon STREAM project.

The CS are very keen to explore options for further project work to build on their successes and are looking for ideas on how to improve trout habitat, particularly on the reach running upstream from the village, but also to review maintenance programmes on the whole reach.

4. Habitat assessment.

The walk-over survey commenced at the hatch pool in the middle of the village of East Chisenbury.

4.1 East Chisenbury to the tank crossing

The section upstream of the hatch pool in the village was the first section to be inspected. The weir itself looks to be an old milling structure and the hatches currently impound a long section of river channel up above the village. The impoundment also enables water to be pushed down an old leat which feeds the Chisenbury manor. The leat itself was not inspected but it is understood that the channel feeds into an ornamental garden within the grounds of the manor, before discharging back into the main river just below the village.

As with most structures located on low gradient chalk rivers, the upstream impounding effect of the structure has significantly impacted the physical characteristics of the channel, resulting in a long reach of sluggish glide, flowing over a mainly thin gravel and sediment river bed.



One of two hatch structures on the weir in East Chisenbury



High quality spawning and nursery habitat immediately downstream of the weir

Immediately downstream of the weir there is some excellent quality spawning and nursery habitat on both channels. The weir itself looks to be a complete barrier for fish migration and it is understood that the EA have identified this weir as a significant obstruction requiring at the very least the construction of a suitable fish pass.

Habitat for flow loving and gravel spawning fish species upstream of the weir is extremely limited and virtually no opportunities for recruitment exist until approximately a few hundred metres below the tank crossing. It is understood that the beat is popular with the rods and the section does provide some capacity for holding stocked trout, grayling and the occasional wild fish, although it is recognised that this reach in general is poor in terms of wild trout habitat.



A section of the impounded reach within the village

Along the first section inspected there were several properties backing onto the river, one or two of which have incorporated the bank of the river into part of the formal managed garden. Unfortunately mown lawns, toe boarding and platforms are not robust bank defences. When river banks are formally managed there are real dangers of erosion and bank failure. Inappropriate riverside planting can also result in the spread of undesirable non-native plants that in some cases result in damage to local ecosystems. There may be some scope to engage with the householders to discuss appropriate treatment of river margins, such as encouraging a fringe of emergent vegetation to protect the hard bank from erosion and to provide invaluable habitat at all times of year for a range of fish and invertebrate species.

Further upstream the channel becomes slightly shallower but still lacks any significant variety in bed morphology or channel width.



A typical section of the channel on the reach above the village.

The RB margin is typical chalkstream, with a low boggy fringe dominated by reed sweet grass (*Glyceria maxima*), providing excellent bank protection and habitat for adult river flies. Where the fringe had formed floating mats of vegetation there is also good cover available for fish.

A little further upstream the channel has been naturally narrowed slightly by beds of encroaching Norfolk reed (*Phragmites australis*). These plants are also extremely valuable. They will help to accrete sediments in the margins around the roots of the plants, as well as acting a natural flow deflector, squeezing the channel slightly which in turn helps to sweep sediments away from central channel locations.

Some tree shading is available on the eastern LB albeit limited and at a very high level. This is not as valuable as the low level shading that can be provided by species such as goat willow, thorn and elder. Scrubby cover near the water surface provides both shade and a safe lie for fish to avoid predation.



A small thorn tree that when in leaf will provide a comfortable lie for a trout in a reach where marginal cover is at a premium



Alder trees can also provide some low cover when coppiced. Note the fringe of Norfolk reed (*Phragmites sp*) on the LB which provides good habitat for fish and invertebrates.



A fringe of Norfolk reed pinching the channel width and elevating in-channel water velocity.



A low goat willow overhanging a carrier on the Test. Trees like this provide a valuable refuge area for juvenile trout over shallow runs, or adult trout over deeper pool habitat.

Scope exists for cutting whips from goat willows and planting them in at a shallow angle in the toe of the bank to create a series of high quality lies. Scrubby cover such as this is particularly useful for over-wintering trout, providing good cover from fish eating birds such as heron and cormorant, despite the obvious management requirements such tree cover necessitates.

In a few areas the club have deliberately left some large fallen trees that have dropped in parallel to the margins. Some of these are creating excellent habitat by providing direct overhead cover for adult trout and by promoting some variations in flow patterns. There is lots of scope to be more radical when the next tree blows over by trimming and securing the trunk to create improved lies for trout.



Cut a notch in the trunk and hinge this tree into the margin and secure with a stake.

The fallen trunk on the right could be complemented by hinging the small tree upstream

Towards the top end of the beat the channel starts to regain its natural gradient and some decent trout habitat is available. At one location the club's keeper has built a log and brash shelf, in order to protect an eroding bank. The work has slightly pinched the channel width and the keeper has skilfully used an upstream facing LWD deflector to harness the elevated velocities which in turn will help to scour sediments from the channel bed. An excellent piece of work, which could be extended to other reaches where the channel is over wide and the river is a flat, shallow glide.



A log and brush shelf with a LB flow deflector – super job.

4.2 Tank crossing to top boundary

It is understood that the section above the tank crossing is rarely used by the members. This section is quite shallow in places and there is considerable scope to improve opportunities for both spawning and nursery habitat. Lying as it does right at the top of the fishery, any efforts here to boost wild trout production will be extremely valuable, as juveniles will inevitably redistribute in a downstream direction, looking for space and suitable lies as they grow on.

A serious bottleneck to wild trout production on many chalk streams is gravel quality. Unfortunately, deposits of precipitated calcium carbonate (tufa) tend to glue the surface of the gravels together, rendering the construction of viable redds extremely difficult for fish. The flat nature of long sections of channel also do not help as trout tend to favour ramps of gravel where there are opportunities for water to flow through the bed, rather than skim over the top. This is why the tail of a pool is so often used by trout and salmon for spawning purposes.

The section immediately adjacent to the tank crossing has potential, and could be improved by either introduction of fresh gravels, or pegging in short sections of LWD across the channel to encourage local bed scour and promote a more varied bed topography. Where ramps of gravel on a gentle upslope already exist, it is well worth arranging some late September work parties to break up the tufa crust with a steel spike and give the gravels a vigorous rake, or jet with a lance and pump. Details of how to undertake effective gravel cleaning are highlighted

in the WTT Chalkstream Habitat manual, which is available via our office on disc, or can be downloaded free of charge via our website www.wildtrout.org



The section either side of the tank crossing has potential to develop improved spawning and nursery habitat

The river bed immediately under the bridge (the bridge invert) is raised and there is scope to create a new spawning glide by introducing a gravel riffle/glide on the section immediately upstream of the invert. Any riffle should be two to three times as long as the channel width and stabilised by first lining the bed with large stones or cobbles and then top dressing with 20-50mm angular river gravels. There is scope here to raise the bed by 200-300mm without backing up the channel too much. It is estimated that approximately 100 m³ of material would be required at 1.8 metric tonne/m³. Approximate costs for materials would be £6000 and a further £1000 for design, plant and manpower. This option is discussed in further detail in the recommendations section of this report.

The section immediately downstream of the bridge could also be improved by raising the bed slightly to provide some shallow nursery habitat and then packing both margins with a matrix of loose brush bundles and cobbles. Connecting good spawning habitat to a significant area of shallow, well covered juvenile habitat will significantly boost wild trout production.



The section immediately downstream of the crossing could be developed as a trout nursery habitat



A lovely section of trout water near the top boundary could be further improved by planting the odd sallow on the RB.

Near to the top boundary there is a discharge point from the local waste water treatment works. No information is available as to how this particular works is performing but it is understood that CS undertake some of their own monitoring via the Anglers Monitoring Initiative. This relies on undertaking a survey of river bugs using a 3 minute "kick sweep" technique. It is important to select sites based on where threats to WQ exist and it is recommended that a site near the tank crossing is included in the clubs monitoring programme.



A waste water discharge near to the fishery top boundary. It is essential that this works performs well at all times. The presence or absence of pollution sensitive invertebrates will give the CS the opportunity for monitoring the performance of the works.

Scope exists for improving a fairly shallow glide habitat that flows beneath a dense canopy of alder cover. Coppicing out random clumps and using the material to peg into the channel will promote more weed growth and a more varied bed shape. It should be remembered that coppiced alder will require repeat coppicing on a 5 to 10 year rotation to avoid the development of intense shading.

The LWD deflectors can be temporary and can be strategically located to promote bed scour exactly where it is likely to be most useful.



A section of shaded channel where some coppicing and pegging in of flow deflectors would work well



A section where some coppicing would be appropriate.

4.3 Bottom boundary to East Chisenbury Weir

Long reaches of the lower beats were in very good shape. Here the river has a much more natural and varied channel form. In several sections, access for angling is being promoted from both banks. The river would benefit from one margin being left comparatively unmanaged to provide enhanced cover for trout.



Section of channel on the bottom beat where a combination of shading and over enthusiastic maintenance of margins has resulted in an over wide channel devoid of useful cover for trout.

One particular section (photo above) was ripe for enhancement. A combination of shading and an over wide channel has resulted in significant silt deposition, a lack of in-channel weed and virtually no cover for trout. If letting in more light to this section is not an option then improvements could be made by pegging in some flow deflectors, or possibly creating a brash shelf out from the LB. Pushing water over to a heavily strimmed RB margin is likely to cause erosion and so the RB margin should also be defended by promoting a low squidgy toe to develop with a fringe of sedge or reed. There is no reason why this could not be established even in a comparatively shaded margin.

There were several sections supporting very high quality trout habitat with well covered margins and shallow riffles displaying strong water crowfoot (*Ranunculus spp*) growth.



A fine section of trout juvenile habitat with well covered sedge fringe on the LB and a cross shelf on the RB. The weedy riffle provides first class habitat for parr

The section of river on beat 4 that was the site of the enhancement works looks to be settling down well. The use of the perpendicular faggot bundle bars is a technique I have not seen used before. I have reservations as to how effective these will be over the long term, but I do believe that the way the channel has been squeezed by winning adjacent bank material to create bunds and backwaters is a triumph. The luxuriant water crowfoot found in this reach reflects the elevated water velocities that have been generated by pinching the channel. This plant is synonymous with healthy chalk streams and is a favoured habitat for several important river flies, including the blue winged olive.

There is room to extend the scope of these works to some of the sections further downstream and resources might be available via the Catchment Restoration Fund which is being rolled out by DEFRA and is available for charitable organisations such as the Wessex Chalk Stream and Rivers Trust to bid into; see <http://www.environment-agency.gov.uk/research/planning/136182.aspx>



Section of channel enhanced as part of the Avon STREAM project. The riparian habitat created is of equal value to the fly fisherman as the improved in-channel habitat.

5 Trout stocking

It is understood that the CS is currently stocking with approximately 800 triploid browns per season. The use of sterile stock is recommended and will be mandatory by 2015. Experimenting with your stocking programme to look at whether or not the current density of fish stocked is giving a good return on the investment is recommended. Clubs will often find that stocking with fewer fish, but on a more frequent basis, gives a much better return rate. It is also believed that some stocking is being carried out by your opposite bank neighbour on the bottom beat. Even stocking with sterile fish will have an impact on wild stocks through increased competition for available space and food.

Stocking is best undertaken on those sections where habitat for small wild fish is absent. Farmed fish are less able to cope with strong water velocities and keeping the section above the tank bridge as a reserve for wild fish makes sense. Some suppliers will agree to tag your stockies so that all stocked fish can be easily recognised and wild fish that are captured can then be returned alive.

6. Conclusions

The Chisenbury Syndicate are extremely fortunate in having access to a long and varied reach of the Avon. The fishery is divided both physically and in habitat character by the weir structure in village. Habitat quality for both trout and grayling upstream of the village is heavily influenced by the impounding effects of the structure. Lowering the impoundment or keeping the hatch gates

fully drawn would pull water through and result in a shallower but faster flowing river in the upstream reach. This would undoubtedly result in much improved habitat developing.

Options for securing flow to the leat would be problematic but are not insurmountable. Currently the perched channel above the weir is leaking and eventually some tough (and expensive) solutions will need to be discussed and implemented. Undertaking and delivering solutions to this issue is probably not within the scope of the angling syndicate and it is recommended that this issue is left with the EA to consult with local interests and ultimately resolve. At the very least improvements to fish passage should be a priority action and the CS should be requesting such action from the EA. Rivers where habitat is joined up rather than fragmented by barriers function much better for wild fish stocks.

There are plenty of options available to the CS to improve habitat at the top of the beat and indeed below the section already enhanced. A good strategy is to start at the very top of the fishery and explore opportunities for improving existing spawning and nursery habitat through the imaginative use of large woody debris flow deflectors and increased amounts of coarse woody debris pegged into shallow bare margins. Explore the possibility of implementing a project to create new spawning and nursery habitat either side of the tank crossing. It is possible that the WTT can work up a separate Project Proposal document that the club can use to bid for resources against and submit to the EA for Land Drainage Consent.

The long impounded reach can also be enhanced to provide improved lies for adult trout, both stocked and wild. Providing some low scrubby cover via a programme of planting with goat willows/sallow and introducing further woody debris flow deflectors to locally pinch the channel will make the reach far more attractive for fish to settle. This does not necessarily equate to easier fishing but will help to boost the holding capacity of sections that are currently too uniform.

Similar opportunities exist on the bottom beat and it is recommended to open up a dialogue with your opposite bank neighbours to discuss riparian bank management and stocking programmes.

The 2012 season is shaping up to be an extremely challenging year with the likelihood of exceptionally low flows and poor weed growth. The provision of temporary woody cover in lieu of luxuriant weed growth is an option that should be explored.



A thorn tree hinged into the channel – brilliant winter cover



A brush bundle tethered to a stake. A method to use where temporary cover might be more desirable.



An upstream "V" deflector set up on log spacers to promote undershot bed scour. These work well on flat shallow glides to promote variety in depth

6. Recommendations

- Lobby the EA for action on the impoundment at East Chisenbury, ideally lowering the height of the impoundment, or as a minimum, the installation of a fish pass.
- Actively preserve the top section above the tank crossing as wild trout water.
- Develop a spawning and nursery habitat project focused on the section adjacent to the tank crossing. A WTT PP might help.
- Carry out more work like the brash shelf and flow deflector already installed.
- Provide more overhead low scrubby cover by planting willows near to the toe of the bank and at shallow angles so that they grow out over the water rather than upwards; ensure their subsequent maintenance as small trees
- Talk to your neighbours about sympathetic fringe management and stocking

- Use tethered brush bundles installed in the margins either permanently or temporarily for winter cover on bare shallow margins.
- Find a volunteer to undertake the Anglers Monitoring Initiative. More information at www.riverflies.org
- Experiment with your trout stocking programme to find optimum densities that still provide high quality sport without impacting wild stocks and provide value for money for the CS syndicate.
- Undertake some end of season maintenance works to likely spawning spots through a programme of gravel cleaning. Details available via the WTT Chalkstream Habitat manual.

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. 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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