



## River Avon – Middle Woodford



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 Avon at Middle Woodford. The advisory visit was carried out at the request of Mr Anthony Edwards who is the fishery owner. Comments in this report are based on observations on the day of the site visit and discussions with Mr Edwards and Mr Lee Jackson who keeps the river on behalf of the owner.

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 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 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.

## **3. Fishery overview**

The Hampshire Avon, is considered to be one of the finest chalk stream trout (*Salmo trutta*) fisheries in the country. The river also has the reputation of being the country's premier chalk stream salmon fishery, and although not producing the numbers of salmon it once did is still an extremely important fishery.

From Salisbury downstream, the river is also nationally renowned for the quality of its coarse fishing; making the river the most famous all round mixed fishery in the country.

The fishery at Middle Woodford comprises approximately two miles of double and single bank fishing on main river and side carrier. The fishery has been subjected to significant river works in an attempt to improve habitat quality and to arrest bank-side erosion. Some of these works have been successful; however, erosion of some margins continues to be of concern. Some recent bank revetment and willow spiling works carried out by Mr Jackson appear to be stabilising the margins on some sections of the carrier.

Angling activity on some beats of the fishery is comparatively light, with the river specially preserved for fly fishing for a mixture of wild and stocked trout, as well as some grayling and occasional winter coarse fishing. Numbers of trout stocked are thought to be quite modest although some of the shared beats are also stocked by the opposite fishery.

Mr. Edwards has recently moved to stocking with sterile, all female triploid fish, in line with the recommendations put forward in the Environment Agency's National Trout and Grayling Fisheries Strategy.

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

##### **4.1 Carrier**

The carrier, which is a bypass channel to the main river, was subject to some major restoration works approximately 10 years ago. Flows through the 500-m long channel are substantial with a narrow but reasonably deep channel profile. The comparatively steep gradient pulls the water through quite vigorously and where the flow has hit any hard obstruction, such as a previously fallen tree or root bole, some excellent quality habitat has been formed.

The banks are relatively low and soft along substantial lengths of the carrier. Low, soft banks on most chalk rivers usually support a diverse and rich flora of chalk river herbs and emergent plants, which provide great habitat and protect banks from excessive erosion. On the outside of some bends, there was evidence of bank-side erosion where the emergent fringe was thin and the wetted margin deep. Attempts to arrest this are on-going with a mixture of live willow spiling and parallel pole revetment.



Low banks, deep margins and bank repairs on the outside of a gentle bend



Strong flows can promote valuable habitat. Evidence of salmon spawning activity



An old willow root system promoting some local bed scour and providing a great lie for a trout

At the head of the carrier where the channel diverts off from the main river there is no formal structure. Currently the main river bank adjacent to this area is in very poor condition and there were several spots where water was beginning to breach through the bank. It is understood that flows in recent years have substantially increased via the carrier route and attempts are going to be made to repair the weak bank. It is imperative that this work is successful otherwise the trend of increased flows via this route will continue, potentially causing massive erosion along the carrier and depriving the main channel of valuable flows.



Main river bank a few meters upstream from the carrier take-off point. Hugely vulnerable to a major breach.

Twenty meters or so below the take-off area another section on the RB of the carrier has subjected to spiling work. It is essential that all materials used are live willow as a combination of live willow and dead willow or hazel will result in only partial protection. Willows that do take off will tie the bank together, however, they will also shade out the development of any local marginal emergent plant such as sedge (*Carex sp*) and will need to be tightly knitted together. Long sections of thick willow spiling will also require considerable maintenance in the future. If the bank defences are designed more to provide a temporary revetment, as in the case of using parallel trunks or poles then it is absolutely crucial to ensure that the margin behind the revetment is low, wet and sticky and planted up with a thick fringe of marginal emergent plants as soon as possible.

A thick fringe of emergent plants has the capacity to absorb energy from the river, provide habitat and can knit the vulnerable bank soils together.



[A woven revetment on the RB – Is this live willow designed to grow or as bank revetment?](#)

Currently the volume of water discharging via the carrier route appears to be too much for the long term sustainability of the channel. Some careful decisions over possible flow splits between the main river and carrier need to be explored.

One possible option which may take some of the pressure off the carrier is to explore the back-watering impact of the hatch structure located on the main channel where it joins the bottom end of the carrier. This under shot hatch potentially enables the main river levels to be lowered. If the hatches were to be fully drawn this may enable more flow to be pulled down the main river route and throttle flows via the carrier. In doing so this will also reduce water levels in the lower milling channel (unless there is a structure at the bottom which could potentially be used to restore levels but not flow).

An added benefit of drawing the hatches fully will be to locally increase water velocities in the main channel which in turn will potentially promote better quality habitats for trout.



Undershot hatches on the main channel could be drawn and may reduce flows through the carrier thus reducing erosion pressures

In general habitats on the carrier were favourable for adult trout although it was considered to be generally too deep and fast to be of huge value as a spawning and nursery site. Gravel quality appeared to be very good with some of the deeper, powerful glides favourable for salmon spawning. The lack of any substantial quantities of shallow riffle habitat will limit the amount of salmonid production.

To enhance the channel further as a holding habitat for trout it would be sensible to restrict angling access to one bank. Dotted low scrubby willows along some of the more open margins will also help to improve its trout holding potential.

#### **4.2 Mill Channel**

The mill channel at present only provides limited habitat for trout, being comparatively deep and slow flowing. It may well be that low densities of larger fish might drop back into a reach like this and perhaps the addition of more marginal cover on the RB would help to enhance its potential for fish holding.



A section of the carrier where access for angling is maintained from both banks. Planting a few scrubby willows on the LB and restricting angling access to the RB would cut down on maintenance requirements and improving habitat for trout.



A section of the mill channel which would benefit from some low scrubby cover on the RB

### 4.3 Main Channel

Much of the main channel running parallel with the carrier was in very good order with the LB margin largely unmanaged. The wide channel was not too deep to support some excellent beds of water crowfoot (*Ranunculus spp*) which provides numerous holding stations for both wild and stocked trout.



Main river channel with a wonderful wild margin proving a superb refuge for fish

The most scope for improvement on the main channel lies in the top reach where there is precious little in the way of marginal cover and lots of evidence of bank erosion. Attempts to stabilise the banks with wooden toe boarding and some faggot work have largely failed. This is mainly due to the lack of any substantial fringe of suitable aquatic emergent plants. Most of the banks have been made up well above river level leading to normally dry conditions where only terrestrial plants can flourish. The slightly flashy nature of the Avon can mean that following long periods of heavy winter rain the river will rise up onto these areas and rip out unsuitable vegetation and nibble away at bare soils. A solution to this problem would be to re-revet the margin; but this time using faggot bundles set very low i.e. just above summer water levels. A one meter strip of the current bank should then be pushed down with a machine bucket to form a low wet backfill. It will be crucial to immediately plant this area with a thick assortment of locally procured emergent plants such as sedge, iris and reed.



Poor habitat for fish and fly life and no protection from bank erosion



A margin of mown or strimmed grass over a steep slope of bare soil just waiting to be eroded by strong winter flows



Area adjacent to the formal gardens where attempts to protect the bank have largely failed.

## 5. Conclusions

Overall the habitat found within the main river and carrier is mainly suited to holding adult trout and mixed coarse fish stocks. The carrier could potentially be developed to provide improved spawning and nursery habitat which could boost the numbers of wild fish throughout the fishery. This will require the flows to be throttled at the top end and potentially the channel made shallower by raising the bed with imported gravels. This work would be expensive and potentially difficult due to poor access.

A clear strategy for managing flow splits between the main river and the carrier is required. Urgent action is needed to limit the erosion at the take-off point where banks are extremely vulnerable to a major breach. The main river hatches could be manipulated to draw more water through via the main river route.

Where banks are eroding a very clear plan needs to be developed to tackle the problem. A combination of spilling on the outside of deep bends and developing wet shelves with a thick fringe of true aquatic emergent plants along straighter sections will provide enhanced bank protection and improve the ecology of the channel.

Restricting angling to one bank on such a narrow channel would seem to be a sensible option for reducing maintenance costs and improving habitat.

The LB margin on the very top end of the main channel can be easily improved. A low squishy berm could be created by pushing the existing high margin into the river behind a low revetment. Planting the fringe with suitable aquatic emergent plants will be the key to success. The fringe should be at least a one metre thick, preferably two, and not subject to topping or mowing.

On a few of the shallower sections of main river and carrier it will be beneficial to consider pegging down some large pieces of woody debris (LWD) to help to locally scour and sort river bed gravels. This simple technique enables fresh spawning substrate to be blown up into bars which creates both good holding pots but also ramps of loose gravel ideal for salmonid spawning.



An example of a trunk section pegged to the river bed with steel re-enforcing bar. An easy way to create good spawning habitat

**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

- On the upstream section of main river consider creating a low wet berm by using an excavator to push the dry bank down behind a low faggot revetment to form a better quality environment for marginal emergent plants. This will improved habitats for trout and fly-life and provide sustainable protection from erosion.
- Throttle the flow running into the carrier by defending the bank adjacent to the take-off point.
- Investigate the potential for drawing the main river hatches fully to reduce flow in the carrier.
- Have a clear plan for dealing with erosion problems on all reaches. A wet fringe made up of emergent plants will be the best option on all but the deepest margins.
- Undertake a programme of tree planting with the odd willow or goat willow (*Salix caprea*) on long open sections of main river, carrier and mill stream to provide improved holding habitat.
- On shallower, gravelly sections peg down the odd section of large woody debris (LWD) to locally scour and sort river bed gravels and improve spawning potential.

## 6. Making it happen

There is the possibility that the WTT could help to start an enhancement programme. Physical enhancement works could be kick-started with the assistance of a WTT 'Practical Visit' (PV). PV's typically comprise a 1-3 day visit where an 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.

## **Disclaimer**

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