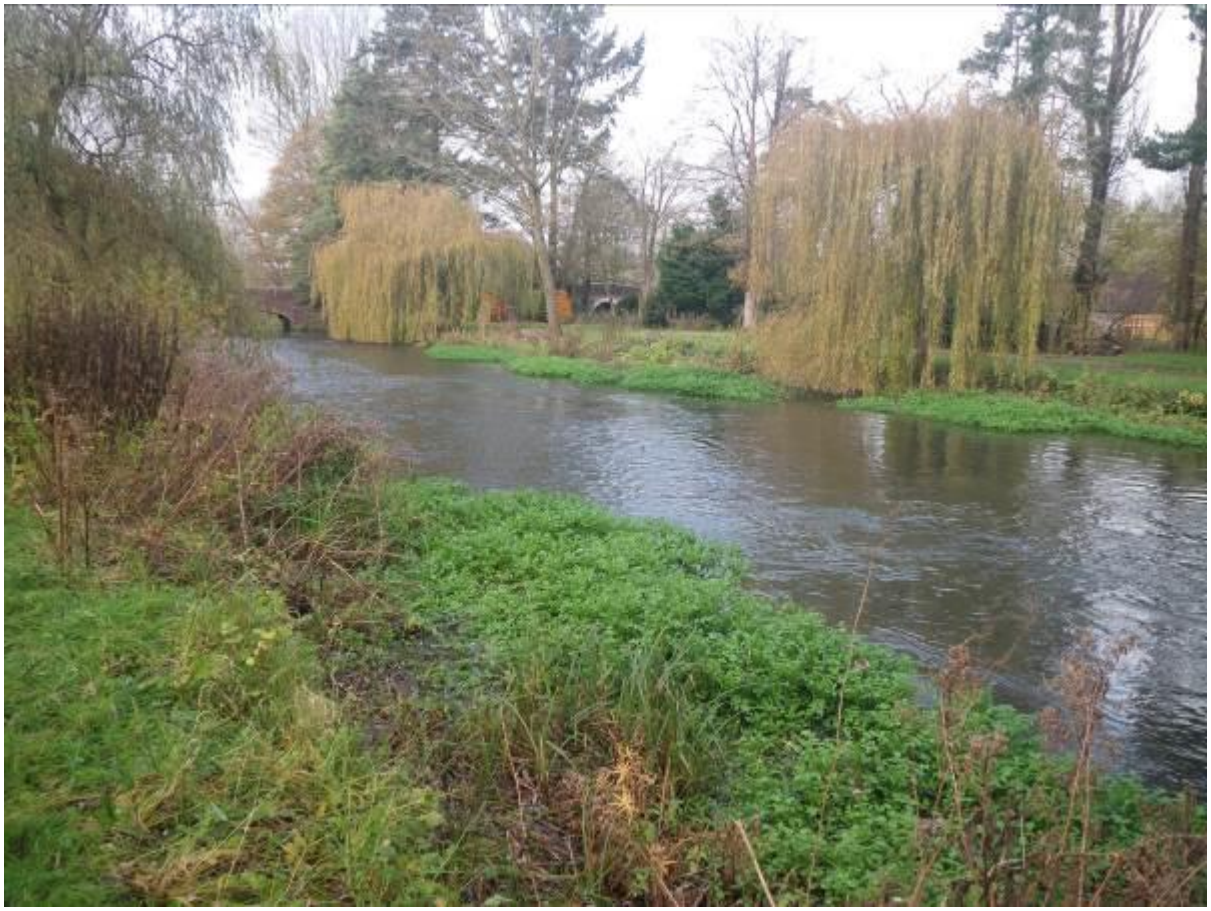
River Kennet – Craven Fishery



An Advisory Visit by the Wild Trout Trust November 2014

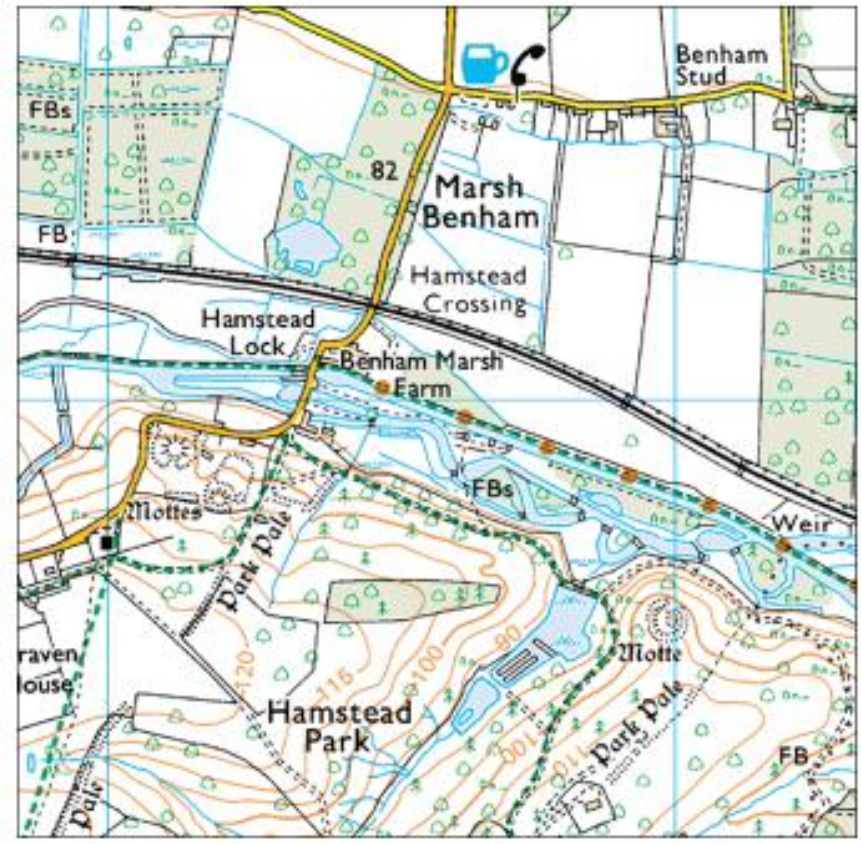
1. Introduction

This report is the output of a site meeting and walk-over survey of the Craven Fishery on the River Kennet at Hampstead Marshall in Berkshire.

The request for the visit came from the owner of the fishery, Mr. Richard White. Mr. White is keen to explore opportunities to enhance and improve the fishery. The quality of the fishery, and in particular water quantity and quality have been in steady decline over the last 25 years and is thought to be linked to a combination of factors, including the restoration and re-opening of the Kennet and Avon Canal, increased abstraction pressures at Axford and the arrival of non-native signal crayfish *Pacifastacus leniusculus*

Comments in this report are based on observations on the day of the site visit and discussions with Mr. White and the river keeper Mr. Geoff Trotman

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.



Map 1 Craven Fishery

The Craven fishery lies just downstream from a short section of combined river and navigation channel. The river and canal converge below Copse Lock and separate at the head of the Craven Fishery at NGR SU 421679. Through the Craven Fishery, the river channel runs parallel with the Kennet and Avon Canal before the two channels re-join near the bottom boundary of the fishery at SU 431667.

The fishery itself consists of a section of main-river and a shorter section of milling channel. Several weir structures bisect the main channel, the largest of which is the top weir which was constructed to provide a head of water for milling. In all the fishery extends to approximately 2km of channel.

The middle Kennet waterbody (ID Number GB106039023172) is classified under the Water framework Directive as having only moderate potential. For a river with a national reputation as being one of the most famous chalkstream fisheries in the country, the Environment Agency's aspirations for the river are disappointing. The modified nature of the channel and the impact of sections interspersing with the navigation channel are two of many factors restricting the river from achieving good ecological condition.

Middle Kennet (Marlborough to Newbury)			
		View data	
Waterbody ID	GB106039023172		
Waterbody Name	Middle Kennet (Marlborough to Newbury)		
Management Catchment	Kennet and Pang		
River Basin District	Thames		
Typology Description	Low, Medium, Calcareous		
Hydromorphological Status	Heavily Modified		
Current Ecological Quality	Moderate Potential		
Current Chemical Quality	Good		
2015 Predicted Ecological Quality	Moderate Potential		
2015 Predicted Chemical Quality	Good		

Overall Risk	At Risk		
Protected Area	Yes		
Number of Measures Listed (waterbody level only)	4		

2. Catchment and fishery overview

The River Kennet is a lowland chalk stream which rises from the Berkshire Downs above Marlborough and flows east for approximately 70 km to join the Thames in Reading. The river drains a mainly rural catchment of approximately 1200km^2.

The Kennet is renowned for once supporting a high diversity of aquatic plants and invertebrates including nationally-scarce species. A number of internationally, nationally and locally-rare/protected invertebrates, mammals and birds are still present within the river corridor. This has resulted in the river between Marlborough and Woolhampton Bridge being designated a Site of Special Scientific Interest (SSSI).

The river is largely managed as a stocked 'put and take' trout fishery upstream of Newbury, with the lower reaches running down to Reading mainly used as a coarse fishery. In practice, the middle reaches from Kintbury downstream to below Newbury have always supported a wonderful mixed fishery, where wild trout could be caught on the fly alongside water that was often used for winter trotting for grayling and coarse fish. The Craven is one of those special fisheries where opportunities abound for the all-round angler.

The reputation of the River Kennet as a top class fishery has been tarnished somewhat over the last few decades. Several factors have been identified as having a big impact on water quality and quantity. The restoration of the Kennet and Avon Canal which reopened in 1990 has undoubtedly impacted on many reaches of the main river Kennet, possibly none more so than the Craven fishery, where the water running down the natural river joins the navigation channel approximately 500m upstream of the top boundary. The increased turbidity generated by boat traffic and lock use has had a drastic effect on the success of rooted macrophytes and in particular on water crowfoot *Ranunculus spp.*

Large densities of signal crayfish have also put plants and slow moving invertebrates under considerable pressure. High densities of bank-burrowing crayfish can destabilise river banks, adding to suspended sediment loads and potentially changing the morphology of the channel.

Abstraction pressures also continue to be of major concern. Recently Thames Water have announced a reduction in the amount of water to be abstracted from the Axford pumping station, where water was previously pumped out of the Kennet catchment to augment water supply for the Swindon area. This decision

followed a long campaign of lobbying by local groups and landowners headed by the Action for the River Kennet (ARK) group.

Other problems include a very recent and extremely serious pesticide pollution and continued diffuse pollution issues emanating mainly from local arable farmland. Continued development pressures in the lower Kennet valley with the associated requirements for water resources and waste disposal will pose significant challenges for those whose job it is to protect this famous river.

The Water Framework Directive should, in theory, be the mechanism for seeking enhanced protection and improvement for this heavily pressured river system.

3. Habitat assessment

3.1 Main Channel

The section of main river channel running through the Craven Fishery can be broadly split into three distinct sections. The top section runs down from the distributary with the Kennet and Avon Canal (photo 1) for approximately 200m where the levels are held up by an old milling structure. A side weir (photo 2) takes the majority of the flow down through the weir and under the Hampstead Marshall road bridge. The milling structure takes flow that is discharged into the carrier channel. The top section of impounded river is not used as part of the main fishery.

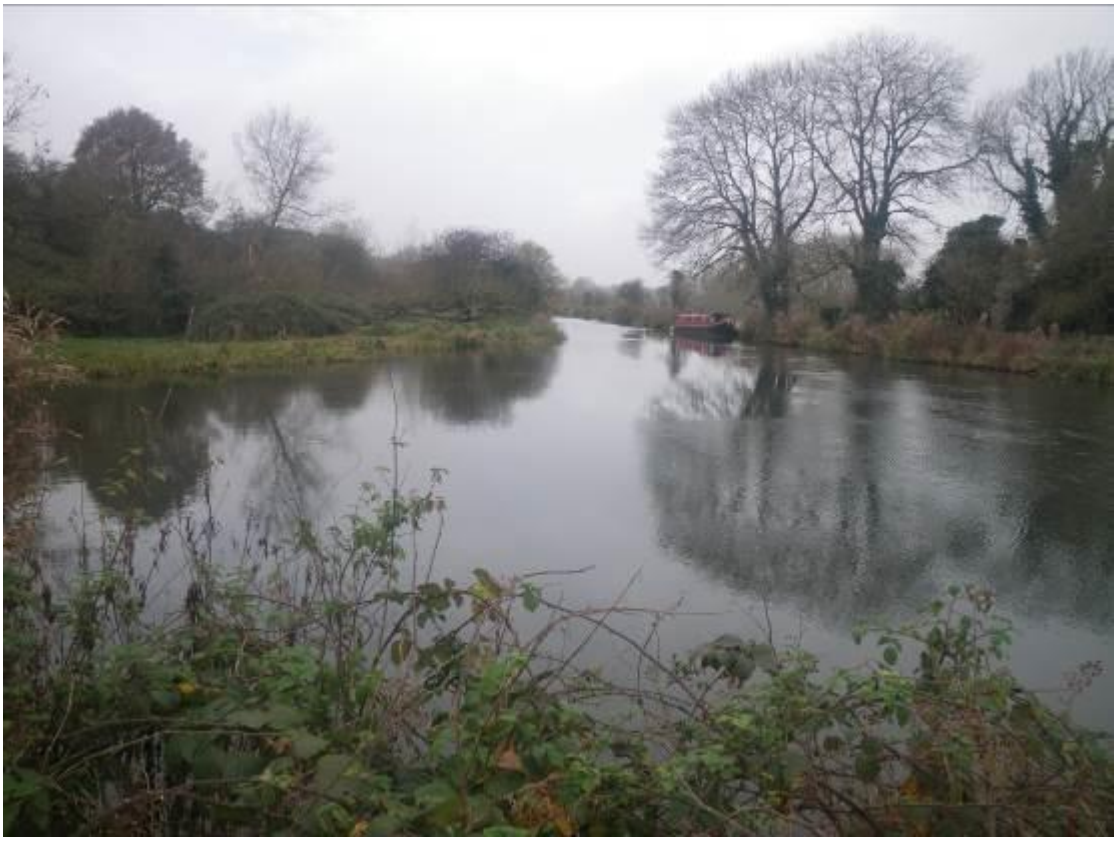


Photo 1. The feed into the Craven fishery flows to the left with the navigation channel passing to the right

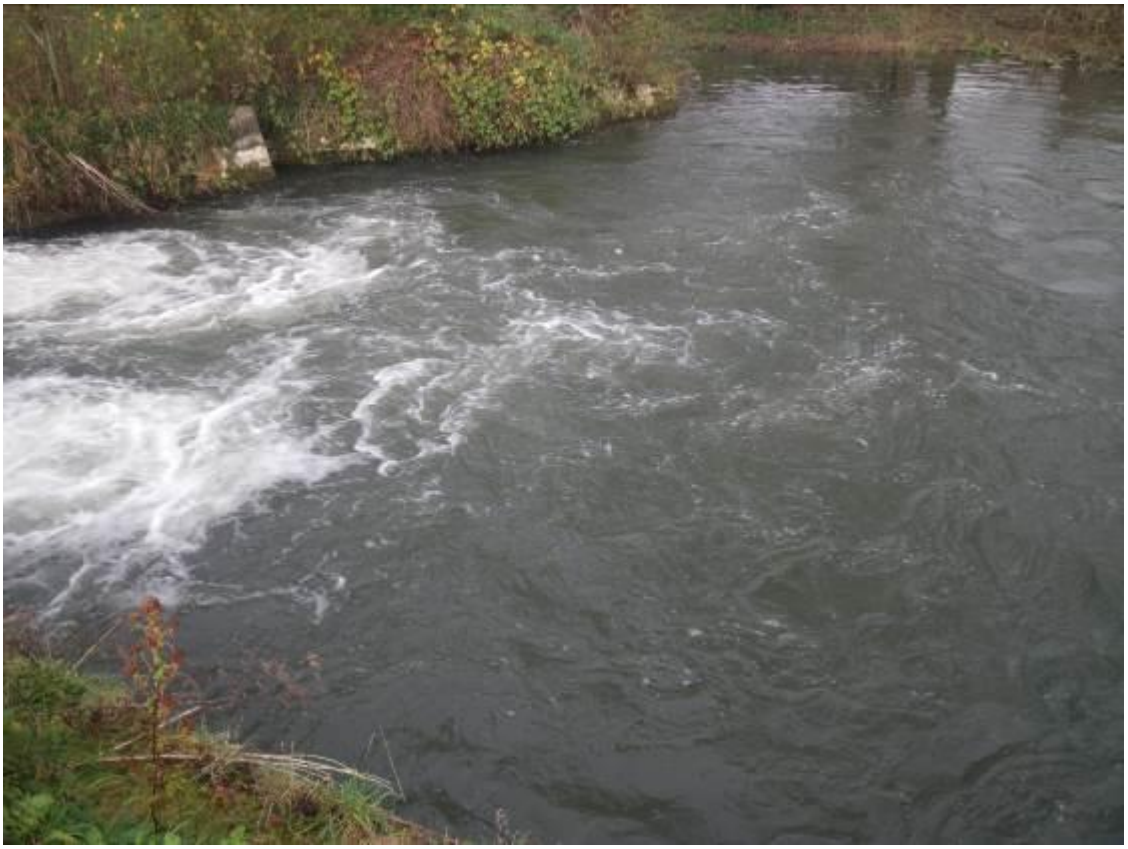


Photo 2. Top weir on the Craven provides the head of water for the mill/carrier channel.

Some of the issues associated with free fish movement have been resolved by a bottom baffled fish pass (photo 3) installed by the Environment Agency. It is thought that this fish pass was constructed as part of the now abandoned Thames Salmon scheme.

The next section downstream of the road bridge to the upstream weir contains some of the best habitat to be found on the fishery (photo 4). Here the channel has a distinct gradient, with good examples of wide shallow riffle, spawning glides and deeper holding pools.

Some submerged water milfoil *Myriophyllum* sp and water moss *Fontinalis* is present and potentially provides some valuable in-channel cover on the fast shallow runs. Weed growth in general and in particular water crowfoot *Ranunculus spp,* was considered to be very sparse for a chalk stream channel. Both Mr. White and Mr. Trotman confirmed that weed growth has progressively become thinner over recent years and believes that the lack of weed is linked to increased turbidity associated with the water supply via the canal. This would seem to be a logical conclusion but may also be linked to increasing densities of signal crayfish.

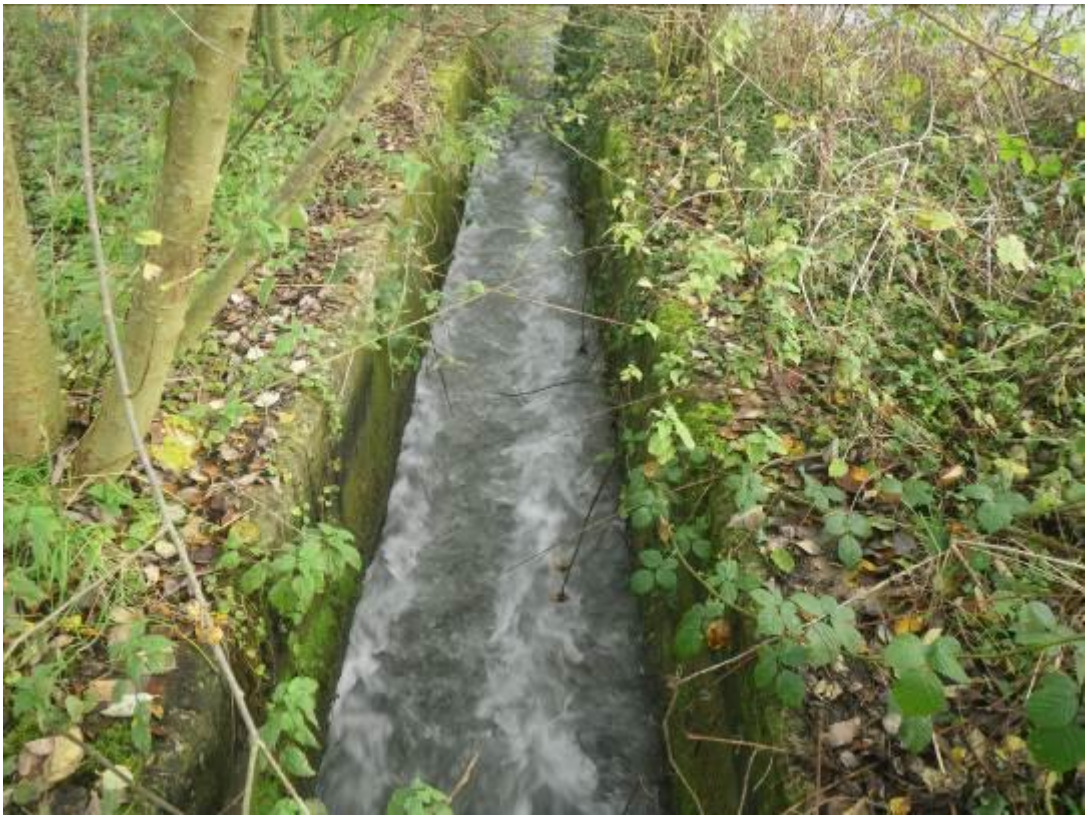


Photo 3. Fish pass installed by the EA.

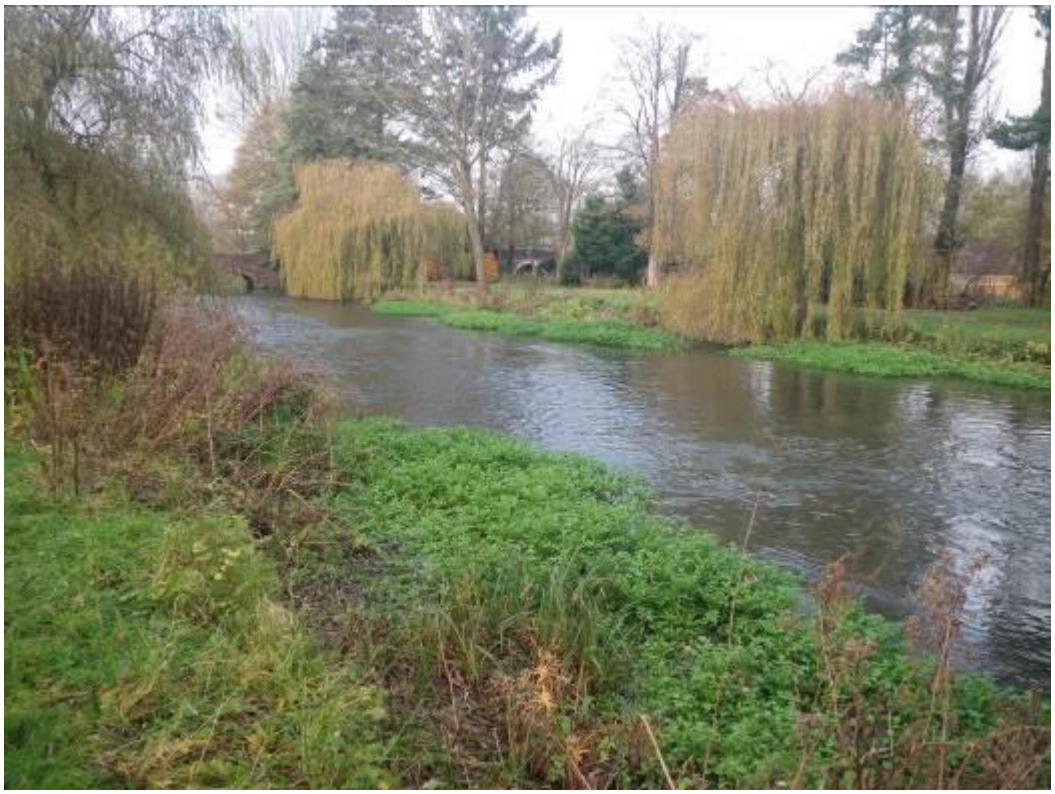


Photo 4. Upper section of the main river beat provides opportunities for spawning and good trout nursery habitat.

The main access road into the property runs parallel to the LB of the fishery. Some sections of bank have suffered from erosion following the very high flows experienced during the 2013/14 winter. These sections have largely been repaired by Mr Trotman using simple vertically driven poles and horizontally woven hazel laths (photo 5). Some valuable low overhanging tree cover is proved by occasional ornamental weeping willows and sallows.

Photo 5. Left bank erosion repairs.

Adjacent to the fishing lodge and keeper's cottage, a second weir holds up levels again. It is presumed that this second weir (photo 6) was installed to provide a head of water for a small off-take in the left bank, which at one time was used to feed water into a series of old, semi derelict stew ponds.

The head loss at this second weir does not pose a problem for fish migration, however the structure significantly drowns out a long section of upstream channel which is predominantly smooth glide habitat flowing over a mainly soft silt bed. Permanently removing all the hatch gates and perhaps even notching out the downstream anti-erosion apron would have a dramatic effect on the upstream reach. By running the river faster and lower, it would be possible to install a series of flow deflectors to create a series of interesting pools and runs, creating a more diverse fishery and certainly an enhanced environment for brown trout. Lowering the structure may limit options for the old stew ponds.

On the lower section of main channel below the second weir there is a very short section of reasonably diverse habitat before the river is again pacified by another impoundment. This lower section of main channel is very wide and slow flowing. Mr. Trotman has been able to create some interest in the channel by leaving

some fallen trees from the RB in situ which has squeezed the channel width and promoted some flow energy (photo 7).

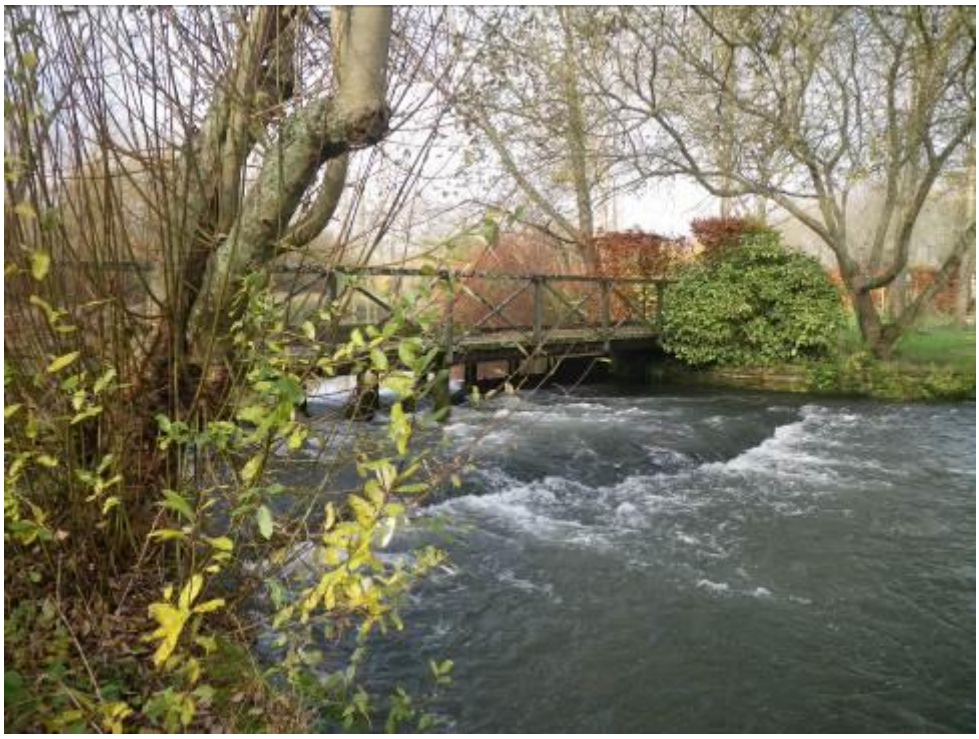


Photo 6. Removing all the hatches and cutting a 3-4 m wide notch in the weir invert would significantly improve habitat quality in the reach above.

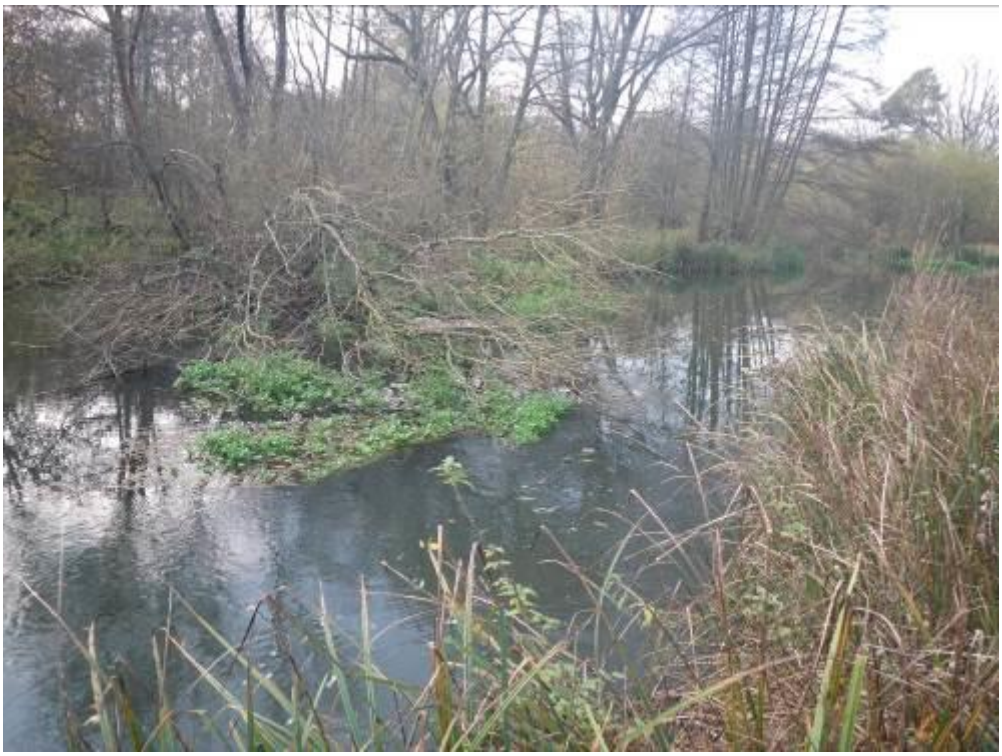


Photo 7. A fallen tree providing valuable cover as well promoting some flow energy adjacent to the near bank.

3.2 Milling outlet/carrier channel

The carrier channel provides some of the best quality habitat for trout to be found on the fishery. Work has been undertaken to extend the length of the channel and provide a natural, sinuous planform. In allowing the carrier to reconnect with the main channel further downstream of the middle weir, as opposed to upstream of the weir, where historically the majority of the flow would have re-joined, the carrier now has sufficient gradient to support good quality chalkstream habitat (photo 8).

The natural pool, riffle and glide sequence provides opportunities for trout spawning, as well as shallow nursery zones and high quality lies for adult trout. The more dynamic nature of the channel has been enhanced further through a sensitive approach to marginal tree and emergent fringe management.

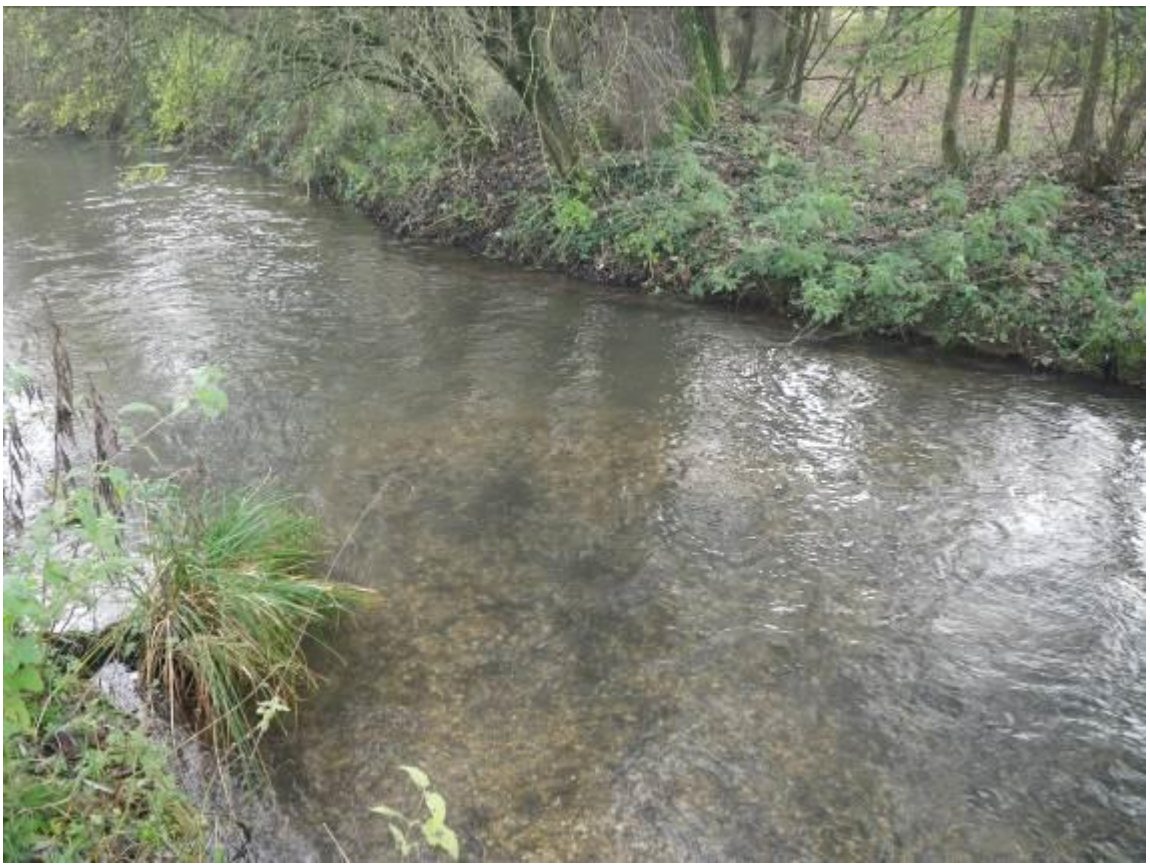


Photo 8. A section of carrier supporting high quality habitats for trout.

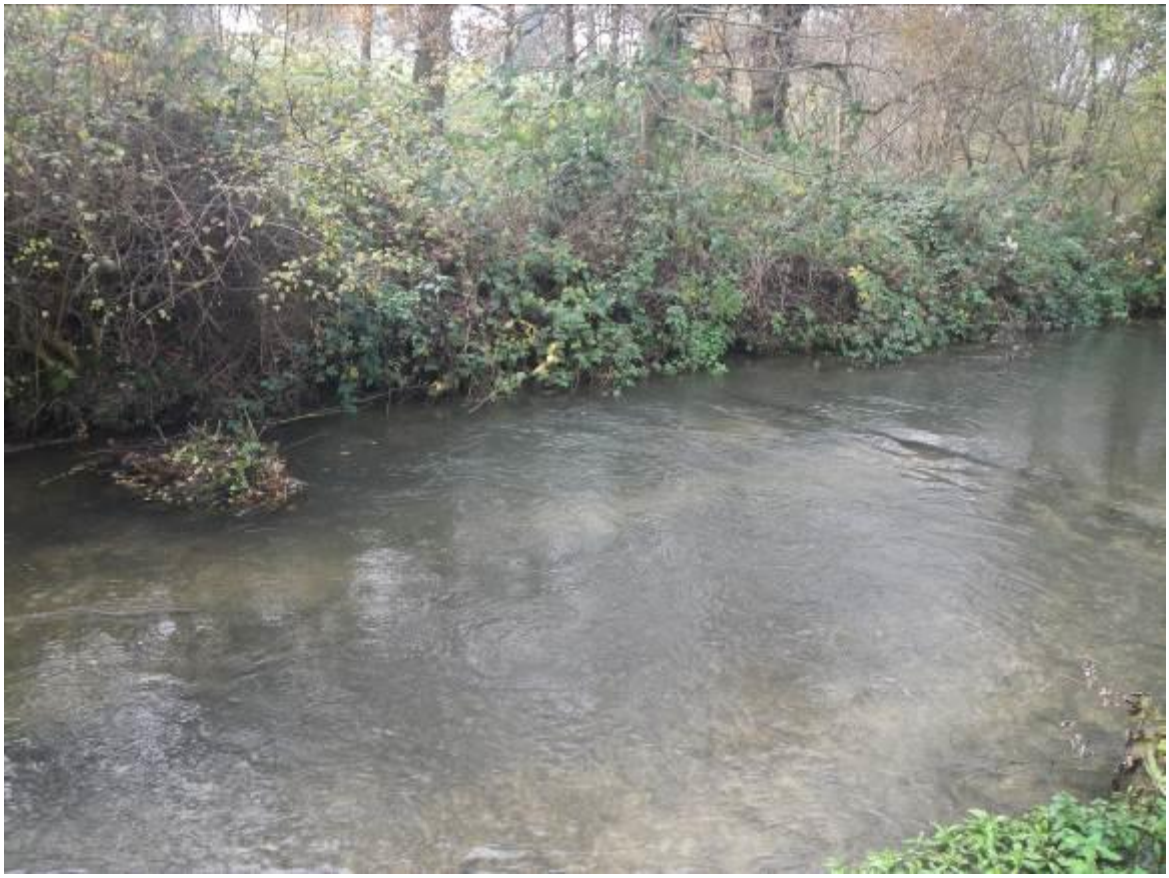


Photo 9. A scrubby fringe and shallow margins provides great cover for juvenile trout when weed growth is poor. Note the line of submerged stones spanning the channel width.

In one section (photo 9) a line of submerged stones forms a low hump in the bed. It is thought that these may have originally been placed into the channel to create a little more upstream water depth. Removing some of the stones to create a central flume will scour the bed and avoid the channel backing up and depositing sediments. Where a gradient in the channel can be utilised to provide an energetic water velocity, the best method for creating improved (deeper) lies for adult trout is to harness the flow energy and drive the bed down and not hold up the level via impoundments.

4. Conclusions

When discussing the fortunes of the Craven as a high quality trout fishery, it is impossible to ignore the impact of the canal and the issues associated with suspended sediments and turbidity.

The three pillars supporting any high quality trout fishery are water resources (quantity), water quality and habitat availability. The Kennet has suffered in recent years through unsustainable abstraction pressures. This problem has been recognised by the regulators and the water company and actions have been taken to try and address this issue.

Unfortunately the problems associated with excessive water abstraction have been compounded by the re-opening of the canal system. The combined impact of increasing enrichment of both surface and groundwater, coupled with the

stirring and mixing effects of boat traffic and lock movements provide perfect conditions for a turbid water environment.

Conditions where the tipping point between macrophyte dominated clear water giving way to algal dominated turbid water are well documented but difficult to predict and manage. The factors contributing towards the turbidity issue are further exacerbated by changes in agricultural practices and the presence of non-native species such as signal crayfish.

Resolving some of the abstraction pressures is great news for the Kennet but it will not resolve fundamental issues associated with turbid water for the Craven Fishery.

Feasibility studies to look into options for isolating the navigation channel from the natural river have been commissioned by the Environment Agency. Engineering solutions to at least partially resolve some of these issues are theoretically possible but would be hugely expensive. Potentially the Water Framework Directive provides the legal framework for action designed to address these issues. Unfortunately in the real world tough decisions have to be made as to where the limited pot of resources allocated for WFD improvements are deployed.

It is strongly recommended to engage positively and fully with the Catchment Partners via the ARK group. Despite all the woes impacting the Kennet in recent years, some excellent progress has been made, particularly with respect to reducing abstraction pressures. Resolving the next big issues pertaining to water quality and the shared resource with the Navigation is undoubtedly the next big challenge.

In addition to the government having duties and responsibilities for improving our rivers, so too do land owners. It is understood that the weir structures at the top end of the fishery are probably linked to some statutory agreement over water levels in the navigation. Presumably at this location decisions can be taken as to the amount of water which is shared between the main channel and the milling channel. A third additional channel also takes flow running to the north of the property. Sometimes consolidating flow into a single channel can help to improve both habitat and connectivity for a river system.

WTT is not necessarily suggesting that in this case all of the available flow is diverted down one, or other of the four available channels but it is worth revisiting how those flow splits are managed to ensure that the channels with the potential to turn flow into improved habitat are given priority.

The potential for lowering or removing the central weir structure will remove the opportunity to divert water into the old stew system but the opportunity to win gradient and turn a long sluggish section into a vibrant, more ecologically valuable section of channel is within the gift of the fishery owner.

The current water clarity issues combined with the shape of the various channels, including the impounded sections and weir pool features pose a number of options for future management. This section of the Kennet has always been held in very high regard as a true mixed fishery. Unless there is to be a

very significant change in river/canal infrastructure, then in many ways it makes more sense to manage the fishery for what it currently could support as opposed to what it historically used to support.

The quality and extent of in-channel habitat will always ensure some modest wild trout production but if this section of river is to continue to be primarily used as a trout fishery then the programme of trout stocking will have to continue, with the associated costs. These days, coarse anglers will pay very good money to access the highest quality coarse fisheries. In many ways the habitat available is more conducive to coarse fish production than salmonids.

If generating an income from the fishery is a priority then integrating rods for both summer fly fishing and autumn/winter coarse fishing may well be an option worth considering.

At some stage in the future, if the water entering the Craven Fishery could be isolated from the navigation canal then there might be opportunities to further improve habitat for trout and conditions for trout fishing through a programme of weir removal, flow consolidation and channel narrowing.

5. Recommendations

- **Fully engage in the River Basin Management Plan consultations.**
- **Engage with the catchment hosts (Action for the River Kennet ARK) to ensure that the issue of water turbidity in the middle reaches of the Kennet are prioritised.**
- **If not already doing so, start to collect regular data on fish catches, invertebrates and macrophyte diversity and density. Seek help from ARK and the EA.**
- **Discuss with Fish Legal your common law rights to an undiminished supply of water both in terms of quality and quantity.**
- **Consider the future of the fishery as either a mixed fishery with the current habitat quality or a major habitat enhancement project should the issues surrounding water quality be resolved.**

Note: All work within 8m of the top of the bank will require a consultation with the EA and may require a formal written Flood Defence Consent prior to any work being carried out.

Acknowledgement

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

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