



Great Stour – Tonford Fishing Club



An advisory visit carried out by the Wild Trout Trust – April 2010

1. Introduction

This report is the output of a Wild Trout Trust advisory visit undertaken on the Great Stour near Chartham, Kent. The advisory visit was carried out at the request of Tonford Fishing Club which leases the fishing rights.

Comments in this report are based on observations on the day of the site visit and discussions with Mr Anthony Pound and Mr Andrew Weatherley from the fishing club. The club is very reliant on stocking to maintain an acceptable level of sport for the 30 members. Some small wild fish are occasionally taken, as is the occasional sea trout. The club are particularly keen to manage habitat in a way that maximises angling potential for club members.

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. Fishing rights controlled by the club are restricted to the LB.

2. Catchment overview

The Great Stour is formed from several headwater streams that eventually join in Ashford to form the Great Stour. The upper reaches of the catchment run through a mixed geology of greensand and gault clays but below Ashford the river starts to run through the Kent chalk, picking up groundwater and taking on the characteristics of a true chalk stream.

Unlike some of the chalkstreams further west, the Great Stour is heavily influenced by the comparatively flashy nature of its headwater streams and this is compounded by the large conurbation of Ashford. Flows can therefore be much more variable than on many true chalkstreams, with the river experiencing spate conditions following heavy rainfall but also suffering from acute low flows following long dry spells. It is likely that a significant proportion of the dry weather flow is made up of treated effluent emanating from waste water treatment works discharging into the river throughout the entire length of the system.

Significant groundwater abstraction pressures are also likely to impact flows and therefore habitat quality on some sections of the river. The WTT does not have specific information regarding any pressures impacting on the lower reaches of the Great Stour although more information will be available from the Environment Agency through their Catchment Abstraction Management plan for the Stour catchment.

As well as brown trout, the river also supports a significant run of sea trout which are known to run upstream as far as the Chilham area, upstream of the Tonford FC waters. This may be an untapped resource and many members of the TFC may be unaware of sea trout fishing opportunities. Mixed coarse fish and good numbers of eel are also found on many stretches of the Great Stour. Further upstream it is believed that white-clawed crayfish (*Austropotamobius*

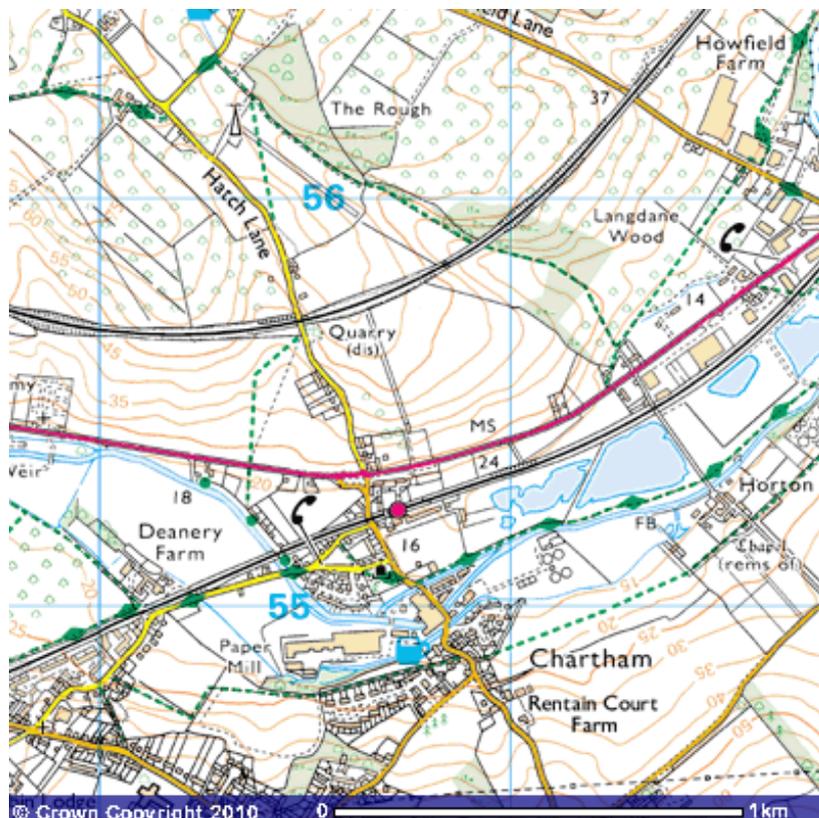
pallipes) are still to be found, making this river one of the last strongholds for native crayfish in the south of England.

3. Fishery overview

The waters controlled by Tonford FC can be broadly split into two beats lying either side of the village of Chartham. The upstream beat above Chartham is considered to be the club's premier beat and is the section where most fish are stocked and most angling activity takes place. The bottom beat, below the village, has a public footpath running adjacent to the fishery and receives a discharge from the local waste water treatment works. This section has not been stocked recently and is comparatively lightly fished by the membership.

A short third beat was inspected which runs downstream of a road bridge near the centre of the village. Habitats for trout on this very short section were considered to be poor and any efforts to enhance this section are reliant on excluding cattle from the RB margin. Habitat quality and potential for enhancement for all sections are fully discussed in section 4.

The top boundary of the fishery is marked by a large weir. It is thought that this site will probably support significant numbers of migratory trout, particularly following a lift in water levels at the back end of the season. From September to the end of the season, night time fly fishing this pool may yield some interesting results. In all the club control approximately 3km of fishing, although surprisingly most of the fishing effort is restricted to the top 500m or so of fishing.



Tonford Fishing Club waters

4. Habitat assessment.

4.1 Top beat

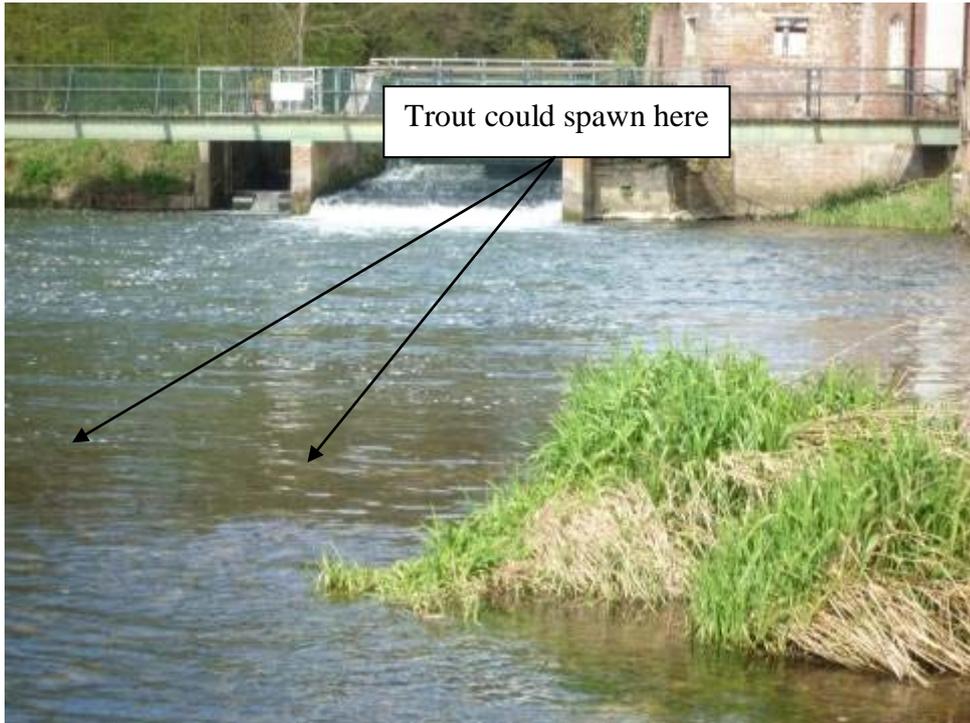
The top beat of the fishery is delineated by a large weir at the top boundary. It is presumed that this was an old milling structure. To facilitate access for migratory salmonids a "pool and traverse" type fish pass has been constructed adjacent to the main impoundment. Flow through the pass appeared to be very low compared to the main structure. This may change when flows increase and this is when most fish will migrate.

Weir pools like this make very good lying up areas for adult trout but are often notoriously difficult to fish. At the tail of the pool there is some of the best quality habitat available on the entire beat, with a nice long glide ramping up over a clean gravel bed, to eventually break into a riffle section ideal for juvenile trout. The gravel glide looks to provide some of the only spawning habitat available in the 1km section of channel above the village.

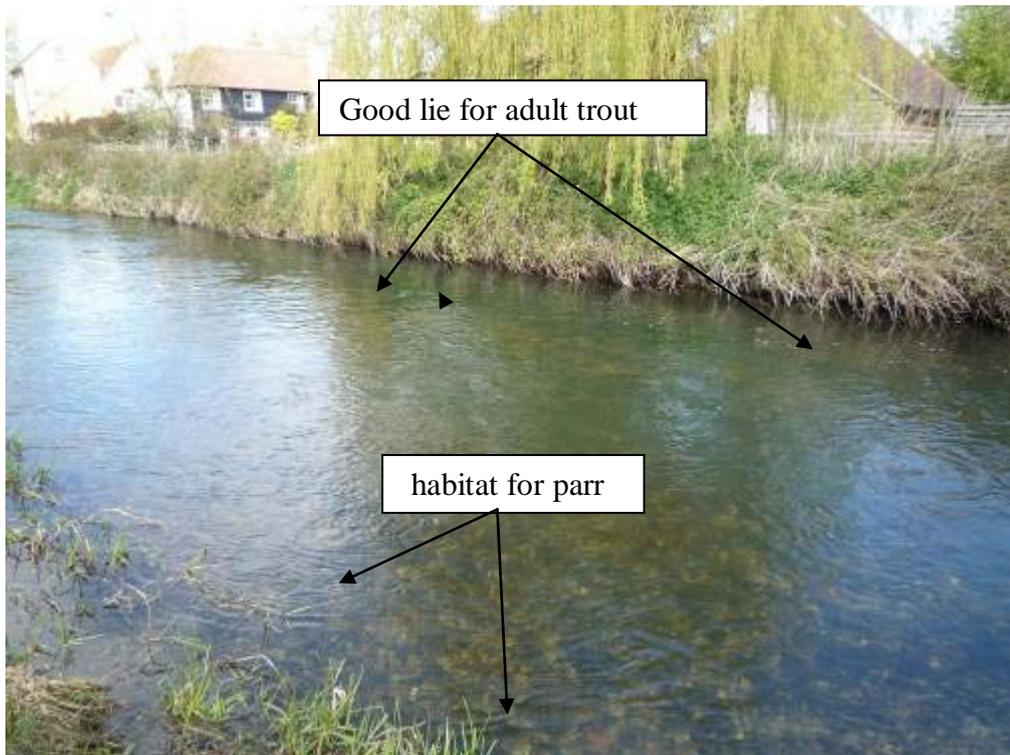


Weir pool forming the top boundary of the fishery. The attractant flow from the fish pass appears to be extremely low and will affect the efficiency of the pass.

Gravel quality and size appeared to be ideal for trout spawning, however, the gravels were compacted and heavily loaded with sediments which can severely impact on spawning success. Healthy beds of water crowfoot (*Ranunculus sp*) flourished where the bed was firm and the flows strong, providing some excellent cover for both adult and juvenile trout, as well as an important habitat for aquatic invertebrates.



The glide at the bottom of the weir potentially provides a good location for spawning



Shallow run below the weir should support juvenile trout but needs more cover

The holding potential of the reach running down to the bridge could be improved with the addition of some low level marginal cover. This is discussed in more detail in the conclusion and recommendations section of this report.



The section of LB would hold more fish with the provision of some low scrubby cover tree cover.

From the access bridge downstream the channel becomes progressively wider and deeper, with a corresponding reduction in water velocities. This section provides virtually no habitat for spawning, or for juvenile trout and only very limited habitat for holding adult fish. It is evident that that this section of channel has been extensively dredged in the past and its ability to recover is heavily restricted by the excessive grazing pressures on the RB. The lack of any significant channel gradient, probably exacerbated by the impounding structures located in Chartham, present a real challenge in terms of providing any quality habitat for trout.

Rehabilitating this section of channel is possible but potentially very expensive. Excluding the livestock from the bank (with the provision of dedicated drinking bays) will help, as will a programme of tree planting. However, what is really required is a radical narrowing of the channel and (in selected areas) either redistributing existing bed material or raising the bed using imported gravels. A project of this nature and scope may well be too ambitious for a small fishing club but might fall within the scope of a partnership project involving the Environment Agency, the land owner, the club and the WTT. This is discussed in more detail in sections 5 and 6 of this report.



Large pieces of woody debris could be usefully pegged into the channel to provided more in-channel diversity and improved habitats for trout.



Heavily degraded river channel. Too wide, too silty and ripe for large scale restoration

A short section of channel lying downstream of a road bridge was also inspected. The channel here was also very wide, slow flowing and heavily influenced by a water level control structure. The LB margin was bordered by a series of house gardens and in several places the banks have been defended to protect gardens from erosion and provide mooring facilities for small boats. The RB margin was badly damaged by cattle poaching.



Section of channel downstream of the roadbridge. Chronically poor quality habitat on both margins and in the centre of the channel

This section of river could be improved but the formal gardens backing onto the channel will always compromise efforts to enhance habitats on this comparatively short section. Resources spent on improving the fishery should probably be directed towards the top and bottom beats rather than this central section.

4.2 Bottom beat

It is understood that this section has not been stocked recently and that fishing effort is comparatively light. The public footpath which runs parallel to the LB of the river is seen by the club as an issue and there are fears that poaching pressures may be excessive along this section. From the centre of the village the river is divided into two channels with the northern channel forming part of the fishery. There is a short section of this channel running down to a water level control structure. Access to the banks here is good and there are some reasonable sections in terms of habitats for flow-loving fish species. The weir itself is of the "crump" design is not considered to be a complete block to fish migration but may prove to be difficult for small trout and coarse fish.

Downstream of the weir, a waste water treatment discharges treated effluent into the channel. Habitat quality from here downstream to the bottom boundary is very good with a variety of pools, riffles and glides over a mainly gravel bed. Weed growth is prolific and the lack of any grazing animals has allowed a rough fringe of shrubs and herbs to develop along the bank margins, providing good cover for trout and trout food. Bank fishing may be difficult but in-channel habitat quality is good.



Crump weir may fragment fish populations on this reach

A further 3-400m downstream is an EA flow gauging weir. The gradient of the river through this reach is sufficiently steep for this structure not to be causing a significant problem by backing up the river and drowning out upstream habitats. The weir is likely to cause problems for some small fish wishing to migrate upstream. This is disappointing, given the potentially strong migratory component of the wild trout stocks within this river.

The section below the gauging weir down to the bottom boundary provides some of the best spawning and nursery habitat available on the fishery. The channel is a little wide and uniform in places and the bed comparatively flat. However, the excellent gravel substrate, steep gradient and prolific water crowfoot growth provides a good habitat for both juvenile and adult trout. Further improvements to this section could be made through the introduction of large woody debris flow deflectors to help scour and sort river bed gravels. This is discussed in more detail in section 5.

Some discussion took place regarding water quality, especially on this section which is downstream of the waste water treatment works. Many angling clubs now take part in the Anglers' Monitoring Initiative in order to maintain a close eye on water quality, which is reflected in the invertebrate populations. One excellent method of monitoring water quality is to link up with the Riverfly

| Partnership Anglers' Monitoring Initiative. The Partnership provides training and a robust method of assessing fly life through periodic sampling of macro-invertebrates. This is a simple and effective way of keeping a close eye on water quality performance. More information can be found at www.riverflies.org.



Flow gauging weir near the bottom boundary



Excellent trout habitat on the bottom reach

5. Conclusions

The fishery controlled by the Tonford FC provides some interesting and varied habitat for trout. The top section, although considered to be the premier reach for fishing, provides only very limited habitat for wild trout on a short section below the weir pool. Efforts to improve the spawning opportunities on this section by breaking up the compacted gravels and removing sediments will help to boost wild production. Planting some low bushy trees (hawthorn or goat willow) to provide improved in-channel cover will also help to provide lies for adult trout, including stocked fish and ensure that a greater proportion of introduced fish remain within the section.

The lower section of this beat presents a real challenge. The excessive grazing pressures on the RB need to be addressed and it is recommended that some discussions are initiated with the farmer in order to reach agreement over fencing. This can be either permanent or temporary but should be set sufficiently far back from the river to provide a thick buffer zone. Some gated access within the zone for a low number of animals to graze is an easy way to reduce maintenance requirements. The river will not recover unless the margin is protected from further erosion and allowed to encroach back in to the channel. If this is allowed to happen then eventually bank access for angling will need to be reviewed and may take the form of the occasional board walk or gravel spine leading out to the river edge.

An even better solution would be to explore options for wholesale restoration. This will involve radically narrowing the channel by creating a new reveted margin and back filling with a matrix of woody brushings and imported gravels. A project of this size and scope would potentially be expensive and will require flood modelling to ensure no detrimental impact to the properties located on the LB. It is recommended that the club opens up a dialogue with the EA to explore options for a partnership project. This section is a complete blank canvas and is ripe for enhancement.



Narrowing an over-wide river to increase water velocity and create improved in-channel habitats

The section lying downstream of the village potentially provides the best opportunities for wild trout. It is understood that poaching pressures are a problem on this reach where there is free public access to the LB. It is recommended that the top section down to the first weir is left as a potential "free for all" and the club take a relaxed view on non members fishing this section.

One possible solution designed to discourage poaching pressures on the rest of the beat is to abandon all attempts at maintaining a fishable bank. This move may not be popular with all members but long sections of the lower beat are perfectly fishable via wading. A thick scrubby fringe of marginal plants will deter bank angling and provide excellent marginal cover for trout. Cutting out a few access points so that wading anglers can safely enter and exit the river is all that is necessary.

There are significant opportunities to promote improved lies for trout and coarse fish by undertaking a programme of tree planting. Pushing in stakes of goat willow at water level will provide some much needed low scrubby cover. The willows will provide cooling shade during long hot dry spells, an external food source via terrestrial invertebrates and a refuge from fish-eating predators.



Low scrubby cover on the top beat – more of this habitat is required throughout the fishery

Significant improvements in spawning success can be achieved by ensuring that gravels on likely spawning locations are broken up and cleaned prior to winter spawning activity. Gravels on rivers like the Stour can become heavily compacted and laden with organically rich sediments. By breaking the surface crust and blasting out the silt with spikes, rakes and water pumps, trout egg survival can be substantially increased.

An alternative method to gravel cleaning is to position and secure pieces of large woody debris to clean and sort gravels by forcing water down and through the surface crust. This technique is particularly useful on wide flat sections of river.



Two pieces of LWD configured to form an upstream "V". Structures like this scour local pots in the shallow bed and promote a clean, loose ramp of gravel downstream.

This method is extensively used by the WTT as it not only helps to boost spawning success but also provides holding habitat and cover for a range of fish species. As the wood rots it also provides a primary source of food for aquatic invertebrates.



Gravel cleaning can significantly boost spawning success on rivers with compacted gravels

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.

6. Recommendations

- Open up a dialogue with the land owner and the EA over the condition of the channel on the top beat.
- Explore options for a restoration project in partnership with others.
- Leave as much woody material in the channel as possible.
- Plant some additional willows (*salix caprea*) or hawthorns to give overhead cover on open sections on both beats.
- Consider introducing more structure into the channel, particularly on shallow gravel sections by using LWD flow deflectors.
- Instigate an early autumn programme of gravel cleaning to boost trout egg survival rates. The WTT can provide training on where and how to undertake this work via a practical visit (PV)
- Consider the option of leaving the top beat as a "wading" beat and allow the margins to scrub up to deter poaching and provide improved in-channel habitats
- Consider signing up for some training in undertaking simple surveys as part of the Anglers Monitoring Initiative with the Riverfly Partnership. This is an excellent initiative and will give you a much better understanding about the productivity of your river and an indication of long term water quality performance.
- Raise awareness amongst the membership over the importance of catch and release for wild trout or sea trout captured.
- Encourage members to take stocked fish out of the river at the end of the season by removing the bag limit from mid September.

7. 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 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.

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